Financial Management

Unit-I: Financial Management: meaning, nature and scope of finance; financial goals; profit maximization, wealth maximization; finance functions, - investment, financing and dividend decisions. Shares and debentures, types and differences.

Unit-II: Capital budgeting; nature and investment decisions; investment evaluation criteria – net present value, internal rate of return, profitability index, payback period, accounting rate of return, NPV and IRR comparison; capital rationing; risk analysis in capital budgeting.

Unit III: Working capital: meaning, significance and types of working capital; financing of working capital; sources of working capital; management of inventory; management of cash; management of account receivables; optimum credit policy; credit collection; factoring service; various committee reports on bank finance; dimensions of working capital management.

Unit IV: capital structure theories: traditional and MM hypotheses; determining capital structure in practice; capital structure planning. Cost of capital: meaning of significance of cost of capital; calculation of cost of debt, preference capital, equity capital and retained earnings; operating and financial leverages; measurement of leverages; effects of operating and financial leverages on profit.

Unit V: Dividend decisions – Types of dividend models – Determinants of dividend policy – Practical aspects of dividend.

Unit-I: Financial Management: meaning, nature and scope of finance; financial goals; profit maximization, wealth maximization; finance functions, - investment, financing and dividend decisions. Shares and debentures, types and differences.

1.1. Meaning, Nature and Scope of Finance:

Finance may be defined as the art and science of managing money. It includes financial service and financial instruments. Finance also is referred as the provision of money at the time when it is needed. Finance function is the procurement of funds and their effective utilization in business concerns.

The concept of finance includes capital, funds, money, and amount. But each word is having unique meaning. Studying and understanding the concept of finance become an important part of the business concern.

Definition of Financial Management:

Howard and Upton: Financial management "as an application of general managerial Principles to the area of financial decision-making.

Weston and Brigham: Financial management "is an area of financial decision-making harmonizing individual motives and enterprise goals".

Joshep and Massie: Financial management "is the operational activity of a business that is responsible for obtaining and effectively utilizing the funds necessary for efficient operations. Thus, Financial Management is mainly concerned with the effective funds management in the business. In simple words, Financial Management as practiced by business firms can be called as Corporation Finance or Business Finance.

1.2.Financial goals or objectives:

Effective procurement and efficient use of finance lead to proper utilization of the finance of the business concern. It is the essential part of the financial manager. Hence, the financial manager must determine the basic objectives of the financial management.

Objectives of Financial Management may be broadly divided into two parts such as:

- Profit maximization
- Wealth maximization.

1.3.Profit maximization Vs wealth maximization

Profit Maximization

Main aim of any kind of economic activity is earning profit. A business concern is also functioning mainly for the purpose of earning profit. Profit is the measuring techniques to understand the business efficiency of the concern. Profit maximization is also the traditional and narrow approach, which aims at, maximizes the profit of the concern. Profit maximization consists of the following important features. Profit maximization is also called as cashing per share maximization. It leads to maximize the business operation for profit maximization.

Favourable Arguments for Profit Maximization

The following important points are in support of the profit maximization objectives of the business concern:

(i) Main aim is earning profit.

(ii) Profit is the parameter of the business operation.

(iii) Profit reduces risk of the business concern.

(iv) Profit is the main source of finance.

(v) Profitability meets the social needs also.

Unfavourable Arguments for Profit Maximization

The following important points are against the objectives of profit maximization:

(i) Profit maximization leads to exploiting workers and consumers.

(ii) Profit maximization creates immoral practices such as corrupt practice, unfair trade practice, etc.

(iii) Profit maximization objectives leads to inequalities among the sake holders such as customers, suppliers, public shareholders, etc.

Drawbacks of Profit Maximization

Profit maximization objective consists of certain drawback also:

(i) It is vague: In this objective, profit is not defined precisely or correctly. It creates some unnecessary opinion regarding earning habits of the business concern.

(ii) It ignores the time value of money: Profit maximization does not consider the time value of money or the net present value of the cash inflow. It leads certain differences between the actual cash inflow and net present cash flow during a particular period.

(iii) It ignores risk: Profit maximization does not consider risk of the business

concern. Risks may be internal or external which will affect the overall operation of the business concern.

Wealth Maximization

Wealth maximization is one of the modern approaches, which involves latest innovations and improvements in the field of the business concern. The term wealth means shareholder wealth or the wealth of the persons those who are involved in the business concern. Wealth maximization is also known as value maximization or net present worth maximization. This objective is an universally accepted concept in the field of business.

Favourable Arguments for Wealth Maximization

(i) Wealth maximization is superior to the profit maximization because the main aim of the business concern under this concept is to improve the value or wealth of the shareholders.

(ii) Wealth maximization considers the comparison of the value to cost associated with the business concern. Total value detected from the total cost incurred for the business operation. It provides extract value of the business concern.

(iii) Wealth maximization considers both time and risk of the business concern.

(iv) Wealth maximization provides efficient allocation of resources.

(v) It ensures the economic interest of the society.

Unfavorable Arguments for Wealth Maximization

(i) Wealth maximization leads to prescriptive idea of the business concern but it may not be suitable to present day business activities.

(ii) Wealth maximization is nothing, it is also profit maximization, it is the indirect name of the profit maximization.

(iii) Wealth maximization creates ownership-management controversy.

(iv) Management alone enjoy certain benefits.

(v) The ultimate aim of the wealth maximization objectives is to maximize the profit.

(vi) Wealth maximization can be activated only with the help of the profitable position of the business concern.

1.4.Functions of finance

Finance function is one of the major parts of business organization, which involves the permanent and continuous process of the business concern. Finance is one of the interrelated functions which deal with personal function, marketing function, production function and research and development activities of the business concern. At present, every business concern concentrates more on the field of finance because, it is a very emerging part which reflects the entire operational and profit ability position

of the concern. Deciding the proper financial function is the essential and ultimate goal of the business organization. Finance manager is one of the important role players in the field of finance function. He must have entire knowledge in the area of accounting, finance, economics and management. His position is highly critical and analytical to solve various problems related to finance. A person who deals finance related activities may be called finance manager.

Finance manager performs the following major functions:

1. Forecasting Financial Requirements

It is the primary function of the Finance Manager. He is responsible to estimate the financial requirement of the business concern. He should estimate, how much finances required to acquire fixed assets and forecast the amount needed to meet the working capital requirements in future.

2. Acquiring Necessary Capital

After deciding the financial requirement, the finance manager should concentrate how the finance is mobilized and where it will be available. It is also highly critical in nature.

3. Investment Decision

The finance manager must carefully select best investment alternatives and consider

the reasonable and stable return from the investment. He must be well versed in the field of capital budgeting techniques to determine the effective utilization of investment. The finance manager must concentrate to principles of safety, liquidity and profitability while investing capital.

4. Cash Management

Present days cash management plays a major role in the area of finance because proper cash management is not only essential for effective utilization of cash but it also helps to meet the short-term liquidity position of the concern.

5. Interrelation with Other Departments

Finance manager deals with various functional departments such as marketing, production, personnel, system, research, development, etc. Finance manager should have sound knowledge not only in finance related area but also well versed in other areas. He must maintain a good relationship with all the functional departments of the business organization.

Controller and Treasurer Function

Chief Financial Officer (CFO)

Controller Functions
- Planning for control
- Reporting and interpreting
- Evaluating and consulting
- Tax administration
- Government reporting
- Protection of assets
- Economic appraisal

Treasurer Functions
- Provision of capital
- Investor relations
- Short-term financing
- Banking and custody
- Credits and collections
- Investments
- Risk management (insurance)

Importance of Financial Management:

Finance is the lifeblood of business organization. It needs to meet the requirement of the business concern. Each and every business concern must maintain adequate amount of finance for their smooth running of the business concern and also maintain the business carefully to achieve the goal of the business concern. The business goal can be achieved only with the help of effective management of finance. We can't neglect the importance of finance at any time at and at any situation. Some of the importance of the financial management is as follows:

Financial Planning

Financial management helps to determine the financial requirement of the business concern and leads to take financial planning of the concern. Financial planning is an important part of the business concern, which helps to promotion of an enterprise.

Acquisition of Funds

Financial management involves the acquisition of required finance to the business concern. Acquiring needed funds play a major part of the financial management, which involve possible source of finance at minimum cost.

Proper Use of Funds

Proper use and allocation of funds leads to improve the operational efficiency of the business concern. When the finance manager uses the funds properly, they can reduce the cost of capital and increase the value of the firm.

Financial Decision

Financial management helps to take sound financial decision in the business concern. Financial decision will affect the entire business operation of the concern. Because there is a direct relationship with various department functions such as marketing, production personnel, etc.

Improve Profitability

Profitability of the concern purely depends on the effectiveness and proper utilization of funds by the business concern. Financial management helps to improve the profitability position of the concern with the help of strong financial control devices such as budgetary control, ratio analysis and cost volume profit analysis.

Increase the Value of the Firm

Financial management is very important in the field of increasing the wealth of the investors and the business concern. Ultimate aim of any business concern will achieve the maximum profit and higher profitability leads to maximize the wealth of the investors as well as the nation.

Promoting Savings

Savings are possible only when the business concern earns higher profitability and maximizing wealth. Effective financial management helps to promoting and mobilizing individual and corporate savings.

Nowadays financial management is also popularly known as business finance or corporate finances. The business concern or corporate sectors cannot function without the importance of the financial management.

1.5.Decisions in financial management

The various decisions under financial management can be categorized under the following four heads.

- ➢ Investment Decisions
- ➢ Finance Decisions
- ➢ Dividend Decisions
- ➢ Liquidity Decisions

Investment Decisions:

The Investment Decision relates to the decision made by the investors or the top level management with respect to the amount of funds to be deployed in the investment opportunities. Capital Budgeting is the process of selecting the asset or an investment proposal that will yield returns over a long period.

The first step involved in Capital Budgeting is to select the asset, whether existing or new on the basis of benefits that will be derived from it in the future.

The next step is to analyze the proposal's uncertainty and risk involved in it. Since the benefits are to be accrued in the future, the uncertainty is high with respect to its returns.

Finally, the minimum rate of return is to be set against which the performance of the long-term project can be evaluated.

Finance Decisions:

The second important decision which finance manager has to take is deciding source of finance. A company can raise finance from various sources such as by issue of shares, debentures or by taking loan and advances. Deciding how much to raise from which source is concern of financing decision. Mainly sources of finance can be divided into two categories:

1. Owners fund.

2. Borrowed fund.

Share capital and retained earnings constitute owners' fund and debentures, loans, bonds, etc. constitute borrowed fund. The main concern of finance manager is to decide how much to raise from owners' fund and how much to raise from borrowed fund. While taking this decision the finance manager compares the advantages and disadvantages of different sources of finance. The borrowed funds have to be paid back and involve some degree of risk whereas in owners' fund there is no fix commitment of repayment and there is no risk involved. But finance manager prefers a mix of both types. Under financing decision finance manager fixes a ratio of owner fund and borrowed fund in the capital structure of the company.

Dividend Decisions:

This decision is concerned with distribution of surplus funds. The profit of the firm is distributed among various parties such as creditors, employees, debenture holders, shareholders, etc.

Payment of interest to creditors, debenture holders, etc. is a fixed liability of the company, so what company or finance manager has to decide is what to do with the residual or left over profit of the company.

The surplus profit is either distributed to equity shareholders in the form of dividend or kept aside in the form of retained earnings. Under dividend decision the finance manager decides how much to be distributed in the form of dividend and how much to keep aside as retained earnings.

Working Capital:

Effective financial management will increase the range of opportunities open to an enterprise to pursue its strategic plan. A liquidity problem, apart from being expensive, reduces options and diverts the attention of management away from a longer-term perspective.

There are commonly three working capital issues on which a business would need to make a decision

· Whether to offer discounts to debtors for prompt settlement of accounts (Receivables Management)

· Whether to dispose of slow-moving stocks at reduced prices, and by how much to reduce them (Inventory Management)

· Whether to purchase by cash or on credit, allowing for discounts which might be on offer. (Cash Management)

1.6. Types of shares and debentures

<u>Shares:</u> Smallest division of the company's capital is known as shares. The shares are offered for sale in the open market, i.e. stock market to raise capital for the company. The rate on which the shares are offered is known as share price. It represents the portion of ownership of the shareholder in the company. The shareholders are entitled to the dividend (if any) declared by the company on the shares.

The shares are movable i.e. transferable and consist of a distinctive number. The shares are broadly divided into two major categories:

- Equity Shares: The shares which carry voting rights on which the rate of dividend is not fixed. They are irredeemable in nature. In the event of winding up of the company equity, shares are repaid after the payment of all the liabilities.
- Preference Shares: The shares which do not carry voting rights, but the rate of dividend is fixed. They are redeemable in nature. In the event of winding up of the company, preference shares are repaid before equity shares.

<u>Debentures:</u> A long-term debt instrument issued by the company under its common seal, to the debenture holder showing the indebtedness of the company. The capital raised by the company is the borrowed capital; that is why the debenture holders are the creditors of the company. The debentures can be redeemable or irredeemable in nature. They are freely transferable. The return on debentures is in the form of interest at a fixed rate.

Debentures are secured by a charge on assets, although unsecured debentures can also be issued. They do not carry voting rights. The debentures are of following types:

- Secured Debentures
- Unsecured Debentures
- Convertible Debentures
- Non-convertible Debentures
- Registered Debentures
- Bearer Debentures

1.7.Differences between shares and debentures

The following are the major differences between Shares and Debentures:

1. The holder of shares is known as a shareholder while the holder of debentures is known as debenture holder.

2. Share is the capital of the company, but Debenture is the debt of the company.

3. The shares represent ownership of the shareholders in the company. On the other hand, debentures represent indebtedness of the company.

4. The income earned on shares is the dividend, but the income earned on debentures is interest.

5. The payment of dividend can be made only out of current profits of the business and not otherwise. Unlike the interest on debentures which has to be paid by the company to debenture holders, no matter company has earned profit or not.

6. Dividend is not a business expense and so is not allowed as deduction. On the contrary, interest on debentures is a expense and so allowed as a deduction.

7. In the event of winding up, debentures get priority of repayment over shares.

8. Shares cannot be converted as opposed to debentures are convertible.

9. There is no security charge created for payment of shares. Conversely, security charge is created for the payment of debentures.

10. A trust deed is not executed in case of shares whereas trust deed is executed when the debentures are issued to the public.

11. Unlike debenture holders, shareholders have voting rights.

12. Shares are issued at a discount subject to some legal compliance. Debentures can be issued at a discount without any legal compliance.

Unit-II: Capital budgeting; nature and investment decisions; investment evaluation criteria – net present value, internal rate of return, profitability index, payback period, accounting rate of return, NPV and IRR comparison; capital rationing; risk analysis in capital budgeting.

2.1. Nature of Investment Decisions:

The Investment Decision relates to the decision made by the investors or the top level management with respect to the amount of funds to be deployed in the investment opportunities. Selecting the type of assets in which the funds will be invested by the firm is termed as the investment decision.

The decision of investing funds in the long term assets is known as Capital Budgeting. Thus, Capital Budgeting is the process of selecting the asset or an investment proposal that will yield returns over a long period.

2.2. Objectives and features of Capital Budgeting:

2.2.1. Objectives of Capital budgeting:

1. To find out the profitable capital expenditure.

2. To know whether the replacement of any existing fixed assets gives more return than earlier.

3. To decide whether a specified project is to be selected or not.

4. To find out the quantum of finance required for the capital expenditure.

5. To assess the various sources of finance for capital expenditure.

6. To evaluate the merits of each proposal to decide which project is best

2.2.2. Features of Capital budgeting:

1. Capital budgeting involves the investment of funds currently for getting benefits in the future.

2. Generally, the future benefits are spread over several years.

3. The long term investment is fixed.

4. The investments made in the project is determining the financial condition of business organization in future.

5. Each project involves huge amount of funds.

6. Capital expenditure decisions are irreversible.

7. The profitability of the business concern is based on the quantum of investments made in the project.

2.2.3. Limitations of Capital Budgeting:

1. The economic life of the project and annual cash inflows are only an estimation. The actual economic life of the project is either increased or decreased. Likewise, the actual annual cash

inflows may be either more or less than the estimation. Hence, control over capital expenditure can not be exercised.

2. The application of capital budgeting technique is based on the presumed cash inflows and cash outflows. Since the future is uncertain, the presumed cash inflows and cash outflows may not be true. Therefore, the selection of profitable project may be wrong.

3. Capital budgeting process does not take into consideration of various non-financial aspects of the projects while they play an important role in successful and profitable implementation of them. Hence, true profitability of the project cannot be highlighted.

4. It is also not correct to assume that mathematically exact techniques always produce highly accurate results.

5. All the techniques of capital budgeting presume that various investment proposals under consideration are mutually exclusive which may not be practically true in some particular circumstances.

6. The morale of the employee, goodwill of the company etc. cannot be quantified accurately. Hence, these can substantially influence capital budgeting decision.

7. Risk of any project cannot be presumed accurately. The project risk is varying according to the changes made in the business world.

8. In case of urgency, the capital budgeting technique cannot be applied.

9. Only known factors are considered while applying capital budgeting decisions. There are so many unknown factors which are also affecting capital budgeting decisions. The unknown factors cannot be avoided or controlled.

2.2.4. Process of Capital budgeting (flow chart):

1. Project identification and generation
2. Project screening and evaluation
3. Project selection
4. Project implementation
5. Performance review

2.2.5. Capital budgeting decisions:

➤ Accept/ Reject decisions
➤ Mutually exclusive project decisions
➤ Capital rationing

2.3. Techniques of Capital Budgeting

Non-discounted Cash Flow Criteria

- Payback Period (PB)
- Discounted payback period (DPB)
- Accounting Rate of Return (ARR)

Discounted Cash Flow (DCF) Criteria

- Net Present Value (NPV)
- Internal Rate of Return (IRR)
- Profitability Index (PI)

1. Payback Period Method (PB):

Payback is the number of years required to recover the original cash outlay invested in a project. If the project generates constant annual cash inflows, the payback period can be computed by dividing cash outlay by the annual cash inflow. That is:

$$Payback = \frac{Initial\ Investment}{Annual\ Cash\ Inflow} = \frac{C_0}{C}$$

Example: A project requires an outlay of Rs 50,000 and yields annual cash inflow of Rs 12,500 for 7 years. The payback period for the project is:

$$PB = \frac{Rs\ 50,000}{Rs\ 12,000} = 4\ years$$

Unequal cash flows In case of unequal cash inflows, the payback period can be found out by adding up the cash inflows until the total is equal to the initial cash outlay.

Example: A project requires a cash outlay of Rs 20,000, and generates cash inflows of Rs 8,000; Rs 7,000; Rs 4,000; and Rs 3,000 during the next 4 years. What is the project's payback?

3 years + 12 × (1,000/3,000) months

3 years + 4 months

Accept/Reject Rule:

The project would be accepted if it's payback period is less than the maximum or standard payback period set by management. As a ranking method, it gives highest ranking to the project, which has the shortest payback period and lowest ranking to the project with highest payback period.

Advantages:

- Simplicity
- Cost effective
- Short-term effects

⟶ Risk shield

⟶ Liquidity

Limitations:

⟶ Cash flows after payback

⟶ Cash flows ignored

⟶ Cash flow patterns

⟶ Administrative difficulties

⟶ Inconsistent with shareholder value

2. Discounted Payback period (DPB):

The discounted payback period is the number of periods taken in recovering the investment outlay on the present value basis. The discounted payback period still fails to consider the cash flows occurring after the payback period.

Discounted Payback Illustrated

		Cash Flows (Rs)				Simple PB	Discounted PB	NPV at 10%
	C_0	C_1	C_2	C_3	C_4			
P	– 4,000	3,000	1,000	1,000	1,000	2 yrs	—	—
PV of cash flows	– 4,000	2,727	826	751	683	—	2.6 yrs	987
Q	– 4,000	0	4,000	1,000	2,000	2 yrs	—	—
PV of cash flows	– 4,000	0	3,304	751	1,366	—	2.9 yrs	1,421

3. Accounting Rate of Return Method (ARR)

The accounting rate of return is the ratio of the average after-tax profit divided by the average investment. The average investment would be equal to half of the original investment if it were depreciated constantly.

$$ARR = \frac{\text{Average income}}{\text{Average investment}}$$ or $$ARR = \frac{\left[\sum_{t=1}^{n} EBIT_t (1-T)\right]/n}{(I_0 + I_n)/2}$$

Example: A project will cost Rs 40,000. Its stream of earnings before depreciation, interest and taxes (EBDIT) during first year through five years is expected to be Rs 10,000, Rs 12,000, Rs 14,000, Rs 16,000 and Rs 20,000. Assume a 50 per cent tax rate and depreciation on straight-line basis.

Period	1	2	3	4	5	Average
Earnings before depreciation, interest and taxes (EBDIT)	10,000	12,000	14,000	16,000	20,000	14,400
Depreciation	8,000	8,000	8,000	8,000	8,000	8,000
Earnings before interest and taxes (EBIT)	2,000	4,000	6,000	8,000	12,000	6,400
Taxes at 50%	1,000	2,000	3,000	4,000	6,000	3,200
Earnings before interest and after taxes [EBIT (1− T)]	1,000	2,000	3,000	4,000	6,000	3,200
Book value of investment:						
Beginning	40,000	32,000	24,000	16,000	8,000	
Ending	32,000	24,000	16,000	8,000	—	
Average	36,000	28,000	20,000	12,000	4,000	20,000

$$\text{Accounting Rate of Return} = \frac{3,200}{20,000} \times 100 = 16 \text{ per cent}$$

Acceptance Rule: This method will accept all those projects whose ARR is higher than the minimum rate established by the management and reject those projects which have ARR less than the minimum rate. This method would rank a project as number one if it has highest ARR and lowest rank would be assigned to the project with lowest ARR.

The ARR method may claim some merits

- ✓ Simplicity
- ✓ Accounting data
- ✓ Accounting profitability

Serious shortcomings

- ✓ Cash flows ignored
- ✓ Time value ignored
- ✓ Arbitrary cut-off

4. Net Present Value Method (NPV):

The net present value (NPV) method is a process of calculating the present value of cash flows (inflows and outflows) of an investment proposal, using the cost of capital as the appropriate discounting rate, and finding out the net profit value, by subtracting the present value of cash outflows from the present value of cash inflows.

Steps in NPV method:

- ✎ Cash flows of the investment project should be forecasted based on realistic assumptions.
- ✎ Appropriate discount rate should be identified to discount the forecasted cash flows.
- ✎ Present value of cash flows should be calculated using the opportunity cost of capital as the discount rate.

✎ Net present value should be found out by subtracting present value of cash outflows from present value of cash inflows. The project should be accepted if NPV is positive (i.e., NPV > 0).

✎ The formula for the net present value can be written as follows:

$$NPV = \left[\frac{C_1}{(1+k)} + \frac{C_2}{(1+k)^2} + \frac{C_3}{(1+k)^3} + \cdots + \frac{C_n}{(1+k)^n}\right] - C_0$$

$$NPV = \sum_{t=1}^{n} \frac{C_t}{(1+k)^t} - C_0$$

Example: Project X costs Rs 2,500 now and is expected to generate year-end cash inflows of Rs 900, Rs 800, Rs 700, Rs 600 and Rs 500 in years 1 through 5. The opportunity cost of the capital may be assumed to be 10 per cent.

$$\begin{aligned}
NPV &= \frac{Rs\ 900}{(1+0.10)^1} + \frac{Rs\ 800}{(1+0.10)^2} + \frac{Rs\ 700}{(1+0.10)^3} + \frac{Rs\ 600}{(1+0.10)^4} \\
&\quad + \frac{Rs\ 500}{(1+0.10)^5} - Rs\ 2,500 \\
&= [Rs\ 900(PVF_{1,\ 0.10}) + Rs\ 800(PVF_{2,\ 0.10}) + Rs\ 700(PVF_{3,\ 0.10}) \\
&\quad + Rs\ 600(PVF_{4,\ 0.10}) + Rs\ 500(PVF_{5,\ 0.10})] - Rs\ 2,500 \\
&= [Rs\ 900 \times 0.909 + Rs\ 800 \times 0.826 + Rs\ 700 \times 0.751 \\
&\quad + Rs\ 600 \times 0.683 + Rs\ 500 \times 0.620] - Rs\ 2,500 \\
&= Rs\ 2,725 - Rs\ 2,500 = +Rs\ 225
\end{aligned}$$

Acceptance Rule:

Accept the project when NPV is positive   NPV > 0

Reject the project when NPV is negative   NPV < 0

May accept the project when NPV is zero   NPV = 0

Advantages:

1. It recognizes the time value of money

2. It considers all cash flows over the entire life of the project in its calculations.

3. It is consistent with the objective of maximizing the welfare of the owners.

Limitations:

1. It is difficult to use

2. It presupposes that the discount rate which is usually the firm's cost of capital is known. But in practice, to understand cost of capital is quite a difficult concept.

3. It may not give satisfactory answer when the projects being compared involve different amounts of investment.

5. Internal Rate of Return (IRR) method:

The internal rate of return (IRR) equates the present value cash inflows with the present value of cash outflows of an investment. It is called internal rate because it depends solely on the outlay and proceeds associated with the project and not any rate determined outside the investment, it can be determined by solving the following equation:

$$C_0 = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \dots + \frac{C_n}{(1+r)^n}$$

$$C_0 = \sum_{t=1}^{n} \frac{C_t}{(1+r)^t}$$

$$\sum_{t=1}^{n} \frac{C_t}{(1+r)^t} - C_0 = 0$$

Calculating IRR by Trial and Error

The approach is to select any discount rate to compute the present value of cash inflows. If the calculated present value of the expected cash inflow is lower than the present value of cash outflows, a lower rate should be tried. On the other hand, a higher value should be tried if the present value of inflows is higher than the present value of outflows. This process will be repeated unless the net present value becomes zero.

Acceptance Rule:

Accept the project when r > k

Reject the project when r < k

May accept the project when r = k

In case of independent projects, IRR and NPV rules will give the same results if the firm has no shortage of funds.

Advantages:

1. Like the NPV method, it considers the time value of money.

2. It considers cash flows over the entire life of the project.

3. It satisfies the users in terms of the rate of return on capital.

4. Unlike the NPV method, the calculation of the cost of capital is not a precondition.

5. It is compatible with the firm's maximising owners' welfare.

Limitations:

1. It involves complicated computation problems.

2. It may not give unique answer in all situations. It may yield negative rate or multiple rates under certain circumstances.

3. It implies that the intermediate cash inflows generated by the project are reinvested at the internal rate unlike at the firm's cost of capital under NPV method. The latter assumption seems to be more appropriate.

6. Profitability Index method (PI):

It is the ratio of the present value of future cash benefits, at the required rate of return to the initial cash outflow of the investment. It may be gross or net, net being simply gross minus one. The formula to calculate profitability index (PI) or benefit cost (BC) ratio is as follows.

$$PI = PV \text{ cash inflows/Initial cash outlay A,}$$

1. It gives due consideration to the time value of money.

2. It requires more computation than the traditional method but less than the IRR method.

3. It can also be used to choose between mutually exclusive projects by calculating the incremental benefit cost ratio.

Example: The initial cash outlay of a project is Rs 100,000 and it can generate cash inflow of Rs 40,000, Rs 30,000, Rs 50,000 and Rs 20,000 in year 1 through 4. Assume a 10 percent rate of discount. The PV of cash inflows at 10 percent discount rate is:

$$PV = Rs\ 40,000(PVF_{1,\,0.10}) + Rs\ 30,000(PVF_{2,\,0.10})$$
$$+ Rs\ 50,000(PVF_{3,\,0.10}) + Rs\ 20,000(PVF_{4,\,0.10})$$
$$= Rs\ 40,000 \times 0.909 + Rs\ 30,000 \times 0.826$$
$$+ Rs\ 50,000 \times 0.751 + Rs\ 20,000 \times 0.68$$
$$NPV = Rs\ 112,350 - Rs\ 100,000 = Rs\ 12,350$$
$$PI = \frac{Rs\ 112,350}{Rs\ 100,000} = 1.1235.$$

Acceptance Rule:

⟶ Accept the project when PI is greater than one. $PI > 1$

⟶ Reject the project when PI is less than one. $PI < 1$

⟶ May accept the project when PI is equal to one. $PI = 1$

Net Present Value	Internal Rate of Return
1. Discount rate is determined by discounting the future cash flows of a project at pre-determined rate i.e. cost of capital or cut off rate.	1. Discount rate is not predetermined under this method. But, this is calculated by trial or error method.
2. It recognizes the importance of market rate of interest or cost of capital.	2. This method does not consider the market rate of interest but prefer to invest the funds at the maximum rate of interest.
3. Under this method, it is presumed that the cash inflows are reinvested at the cut off rate or cost of capital.	3. Under this method, it is presumed that the cash inflows are presumed to be reinvested at the internal rate of return.

2.4. Capital Rationing:

In a situation where the firm has unlimited funds, capital budgeting becomes a very simple process. In that, independent investment proposals yielding a return greater than some predetermined level are accepted. But actual business has a different picture. They have fixed capital budget with large number of investment proposals competing for it. Capital rationing refers to the situation where the firm has more acceptable investments requiring a greater amount of finance than that is available with the firm. Ranking of the investment project is employed on the basis of some predetermined criterion such as the rate of return. The project with highest return is ranked first and the acceptable projects are ranked thereafter.

In other words Capital rationing is the act of placing restrictions on the amount of new investments or projects undertaken by a company. This is accomplished by imposing a higher cost of capital for investment consideration or by setting a ceiling on specific portions of a budget. Companies may want to implement capital rationing in situations where past returns of an investment were lower than expected.

Capital rationing is essentially a management approach to allocating available funds across multiple investment opportunities, increasing a company's bottom line. The combination of projects with the highest total net present value (NPV) is accepted by the company. The number one goal of capital rationing is to ensure that a company does not over-invest in assets. Without adequate rationing, a company might start realizing decreasingly low returns on investments and may even face financial insolvency.

Types of Capital Rationing

The first type of capital rationing is referred to as "hard capital rationing." This occurs when a company has issues raising additional funds, either through equity or debt. The rationing arises from an external need to reduce spending and can lead to a shortage of capital to finance future projects.

The second type of rationing is called "soft capital rationing," or internal rationing. This type of rationing comes about due to the internal policies of a company. A fiscally conservative company, for example, may have a high required return on capital in order to accept a project, self-imposing its own capital rationing.

2.5. Risk analysis in capital budgeting

Capital budgeting decisions involve costs and benefits extending over a longer time horizon. During this many things can change in unanticipated ways. All investments being considered for

inclusion in the capital budget has the same risk as those of the existing investments of the firm. (Simplifying assumption). This explains the usage of average cost of capital for project evaluation. In reality projects though differ in risk propositions and hence variations in risk need to be evaluated explicitly in capital investment appraisal.
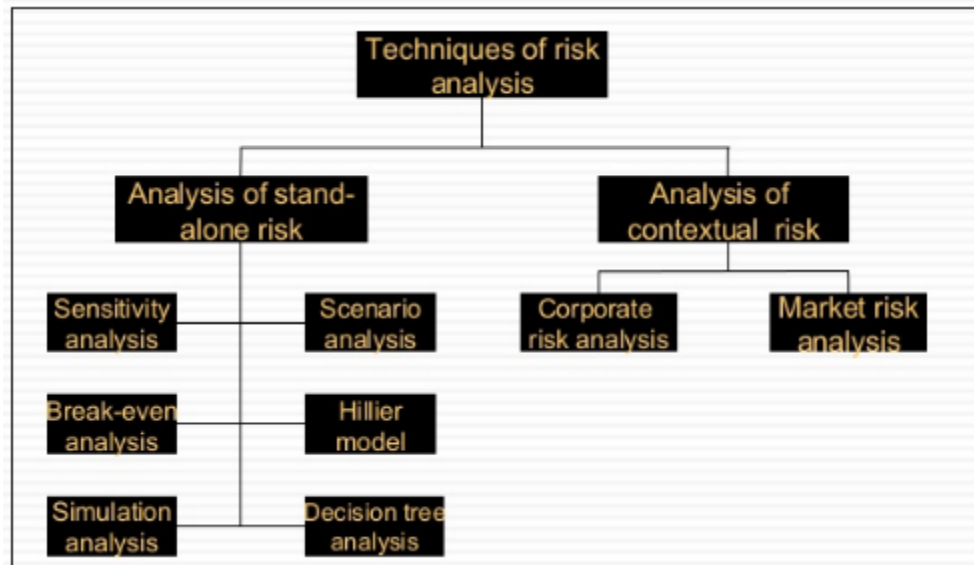
Stand-alone risk: This represents the risk of a project when it is viewed in isolation.

Corporate risk: Represents the contribution of a project to risk of the firm.

Market risk: Risk of a project from the point of view of a diversified investor. It is also called systematic risk.

Significance of Stand-alone Project Risk

•Measuring a project's stand-alone risk is relatively less complex than measuring its corporate risk and market risk.

•In most of the cases stand-alone risk, corporate risk and market risk are highly correlated.

•Proponent of a capital investment is likely to be judged on performance of that investment.

•In most firms, the capital budgeting committee considers investment proposals one at a time.

Significance of Corporate Risk

•Undiversified shareholders (like promoters) are more concerned about corporate risk than market risk.

•Diversified investors consider corporate risk in addition to market risk when they specify requirement.

•Stability of overall corporate cash flows and earnings is valued by all stakeholders of the firm.

Sensitivity Analysis: Sensitivity analysis is a way of analysing change in the project's NPV (or IRR) for a given change in one of the variables. The decision maker, while performing

sensitivity analysis, computes the project's NPV (or IRR) for each forecast under three assumptions:

–pessimistic,

–expected, and

–optimistic

The following three steps are involved in the use of sensitivity analysis:

1. Identification of all those variables, which have an influence on the project's NPV (or IRR).

2. Definition of the underlying (mathematical) relationship between the variables.

3. Analysis of the impact of the change in each of the variables on the project's NPV.

Sensitivity analysis is also known as 'What if' analysis as it allows decision maker to ask 'What if' Questions.

For Example:

1. What (is the NPV) if volume increases or decreases?

2. What (is the NPV) if selling price increases or decreases?

3. What (is the NPV) if variable cost or fixed cost increases or decreases?

4. What (is the NPV) if project is delayed or outlay escalates?

5. What (is the NPV) if project's life is more or less than anticipated?

in Rs. million

Key Variables	Range			NPV		
	Pessimistic	Expected	Optimistic	Pessimistic	Expected	Optimistic
Investment	24	20	18	- 0.65	2.60	4.22
Sales	15	18	21	- 1.17	2.60	6.40
VC as Sales%	70	66.67	65	0.34	2.60	3.73
Fixed Costs	1.3	1	0.8	1.47	2.60	3.33

Merits:

•Indicates how robustness or vulnerability of a project to changes in underlying variables.

•If NPV is highly sensitive to changes in some factor, it may be worthwhile to explore how the variability of that critical factor may be contained.

•Articulates the concerns of project evaluators, thus having intuitive appeal.

Limitations:

•Merely shows what happens to NPV when there is a change in some variable. It doesn't indicate the likelihood of such variations.

•Typically, in sensitivity analysis only one variable is changed at a time. In real world, though, variables tend to move together.

•Inherently subjective. Same sensitivity analysis may lead one decision maker to accept the project while another may reject it.

•It fails to focus on the interrelationship between variables. For example, sale volume may be related to price and cost. A price cut may lead to high sales and low operating cost.

Scenario Analysis: A major limitation of sensitivity analysis amounts to the assumption of only a single variable varying at a time. Scenario Analysis addresses this concern by permitting variations in several key variables of a project simultaneously. Specifically it indicates the impact on project NPV (i.e. DV) resulting from changes in multiple influencing project variables (i.e. IDVs) at one go.

Limitations:

•Based on assumption that there are a few well-delineated scenarios. This may not be true in many cases. A situation can exist anywhere on the continuum between extremes.

Converting a continuum into discrete states of nature leads to loss of information.

•It expands the concept of value estimation. As the number of inputs variables go up, need for value estimates multiply exponentially.

Example:

	Pessimistic Scenario	Expected Scenario	Optimistic Scenario
1. Investment	24	20	18
2. Sales	15	18	21
3. Variable costs	10.5 (70%)	12 (66.7%)	13.65 (65%)
4. Fixed costs	1.3	1.0	0.8
5. Depreciation	2.4	2.0	1.8
6. Pre-tax profit	0.8	3.0	4.75
7. Tax	0.27	1.0	1.58
8. Profit after tax	0.53	2.0	3.17
9. Annual cash flow from operations	2.93	4.0	4.97
10. Net present value (9) x PVIFA (12%, 10 yrs) – (1)	(7.45)	2.60	10.06

<u>Break Even Analysis:</u> Sensitivity analysis and Scenario analysis reveal what will happen to the project if sales decline or costs increase or something else happens, either individually or together.

•Break even analysis attempts to answer how much should be produced and sold at a minimum to ensure that the project doesn't lose money.

•Minimum quantity at which loss is avoided is called the Break-even Point.

•Break even point may be defined in accounting terms or financial terms.

<u>Cash Break-Even Point:</u> Defined as the level of sales at which the firm neither makes a cash profit nor incurs a cash loss.

Cash Break-even sales = Fixed costs ÷Contribution margin ratio

<u>Financial Break-Even Point:</u> Focus of financial break-even analysis is on NPV instead of accounting profit. It attempts to answer at what level of sales will the project have a zero NPV. Financial break even analysis evidences that the annual cash-flow of project depends on sales.

<u>Hillier Model:</u> Hiller model is an approach suggesting derivation of expected NPV and standard deviation of NPV through analytical procedures.

Two cases of such analysis are:

➢ Uncorrelated cash flows

➢ Perfectly correlated cash flows

Uncorrelated Cash Flows

$$\overline{NPV} = \sum_{t=1}^{n} \frac{\overline{C_t}}{(1+i)^t} - I$$

$$\sigma(NPV) = \sum_{t=1}^{n} \left(\frac{\sigma_t^2}{(1+i)^{2t}} \right)^{1/2}$$

Perfectly Correlated Cash Flows

$$\overline{NPV} = \sum_{t=1}^{n} \frac{\overline{C_t}}{(1+i)^t} - I$$

$$\sigma(NPV) = \sum_{t=1}^{n} \frac{\sigma_t}{(1+i)^t}$$

σ_t: Standard deviation of cash flow for year t,
i: risk-free rate or discount rate,
I: Initial investment

<u>Managing Risk:</u>

➢ Ultimate aim of managers is not merely measuring risk, but rather containment and mitigation of risks.

➢ Various risk reduction strategies have specific cost associated with them. Their profitability depend on circumstances

- Fixed and Variable Costs: Modifying the risk of an investment is changing the proportions of fixed and variable costs. By increasing the proportion of VC firm can achieve decline in break even sales.

- Pricing Strategy: A lower price increases potential demand, but also raises the break-even level. Thus, firms often launch the higher priced variant first, and later introduce an economy version.

- Sequential Investment: If uncertain about market response to product, start small and later expand as the market grows. It can lead to higher capital cost per unit given the fact that capacity is created in stages.

- Improving Information: Gathering more about the market and technology before entering the business. Additional study improves the quality of forecasts but involves direct costs as well as opportunity costs of delayed action.

- Financial Leverage: Reducing the dependence on debt lowers risk. High operating risk of project Low level of financial leverage.

- Insurance: Insurance cover against physical damage, theft, loss of key person, and so on.

- Long Term Arrangements: Entering into longer term contracts with suppliers, employees, lenders and customers. Such contracts are often indexed, factoring in inflation.

- Strategic Alliance:
    - When the resources required for a project or the risks inherent in a project are beyond the capacity of a single company.
    - Represents a partnership between two or more independent firms which join hands to achieve a common purpose.
    - Massive resource requirements and huge risks in modern enterprises have compelled rivals to work together, leading to a phenomena called co- option.

- Derivatives:
    - An option gives its owner the right to buy or sell an underlying asset on orbefore a given date at a predetermined price
    - A futures contract is an agreement between two parties to exchange an asset for cash at a predetermined future date for a price specified today. It eliminates price risk.

- Shorter Time to Market:
    - A way to reduce uncertainty is cutting time to market.
    - Enables early generation of revenues on investments.

- Reduced risk exposure owing to need for anticipating customers needs and preferences for a shorter time frame.

➤ Contingency Planning:

- Apart from undertaking risk reduction measures, well managed firms prepare for the worst.

- Listing the things that could go wrong with a decision and then identifying the actions that would be taken to cope with those adverse developments.

Unit III: Working capital: meaning, significance and types of working capital; financing of working capital; sources of working capital; management of inventory; management of cash; management of account receivables; optimum credit policy; credit collection; factoring service; various committee reports on bank finance; dimensions of working capital management.

3.1. Concept of working capital

Working capital is the capital which is needed to meet the day-to-day transaction of the business concern. It may cross working capital and net working capital. Normally working capital consists of various compositions of current assets such as inventories, bills, receivable, debtors, cash, and bank balance and prepaid expenses.

According to the definition of Bonneville, "any acquisition of funds which increases the current assets increase the Working Capital also for they are one and the same".

Working capital is needed to meet the following purpose:

● Purchase of raw material

● Payment of wages to workers

● Payment of day-to-day expenses

● Maintenance expenditure etc.
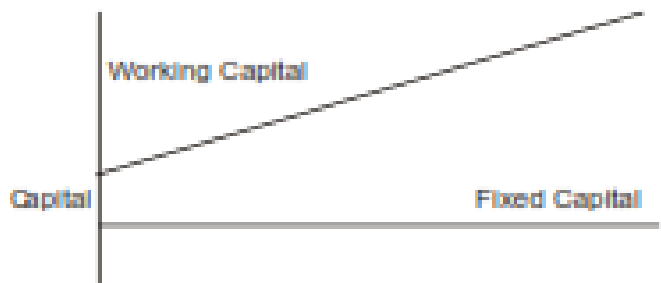
Determinants of Working Capital:

1. Nature of business
2. Market and demand
3. Technology and manufacturing policy
4. Credit policy
5. Supplies' credit
6. Operating efficiency
7. Inflation

Operating Cycle:
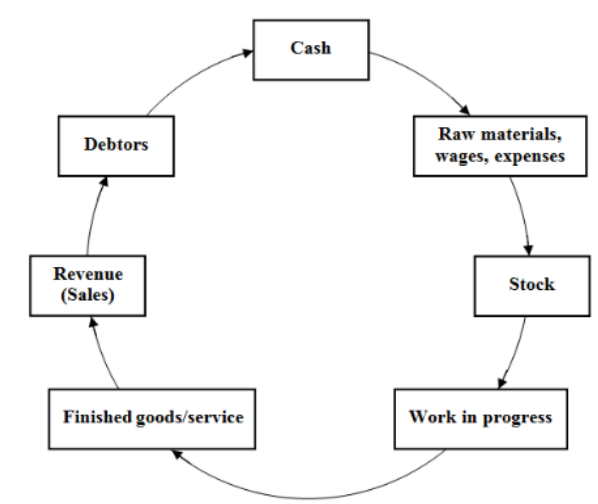
Gross working capital (GWC)

GWC refers to the firm's total investment in current assets.

Current assets are the assets which can be converted into cash within an accounting year (or operating cycle) and include cash, short-term securities, debtors, (accounts receivable or book debts) bills receivable and stock (inventory).
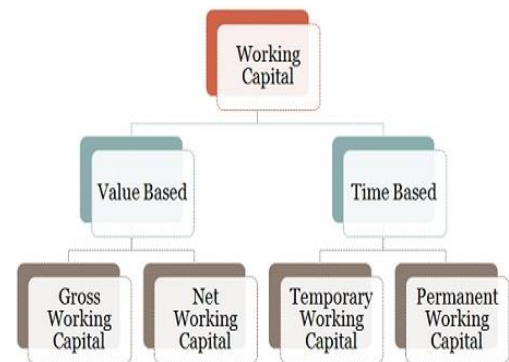
Net working capital (NWC)

NWC refers to the difference between current assets and current liabilities.

Current liabilities (CL) are those claims of outsiders which are expected to mature for payment within an accounting year and include creditors (accounts payable), bills payable, and outstanding expenses.

NWC can be positive or negative.

⇝ Positive NWC = CA > CL

⇝ Negative NWC = CA < CL

Temporary working Capital

Otherwise known as variable working capital, it is that portion of capital which is needed by the firm along with the permanent working capital, to fulfil short-term working capital needs that emerge out of fluctuation in the sales volume.
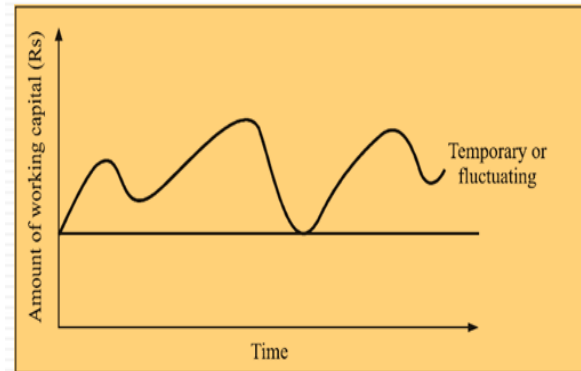
Permanent Working Capital

The minimum amount of working capital that a company holds to carry on the operations without any interruption, is called permanent working capital.

Permanent or fixed working capital

A minimum level of current assets, which is continuously required by a firm to carry on its business operations, is referred to as permanent or fixed working capital.

Permanent and temporary working capital

Fluctuating or variable working capital

The extra working capital needed to support the changing production and sales activities of the firm is referred to as fluctuating or variable working capital.

3.2. Sources of working capital

Sources of working capital can be

- Spontaneous
- Short term and
- Long term.

Spontaneous sources of Working Capital:

The word 'spontaneous' itself explains that this source of working capital is readily or easily available to the business in the normal course of business affairs. The quantum and terms of this credit depend on the industry norms and the relationship between buyer and seller. These sources include trade credit allowed by the sundry creditors, credit from employees, and other trade-related credits. The biggest benefit of spontaneous sources as working capital is its 'effortless raising' and 'insignificant cost' compared to traditional ways of financing.

List of spontaneous sources of working capital:

- ➢ Trade credit
- ➢ Sundry creditors
- ➢ Bills payable
- ➢ Notes payable
- ➢ Accrued expenses

Short term sources of Working capital:

Short term sources can be further divided into internal and external sources of working capital finance.

The Short-term Internal Sources

- ➢ Tax provisions
- ➢ Dividend provisions

Short-term External Sources
- ➢ Bank overdrafts,
- ➢ Cash credits,
- ➢ Trade deposits,
- ➢ Bills discounting,
- ➢ Short-term loans or working capital loans,
- ➢ Inter-corporate loans,
- ➢ Commercial paper, etc

Long term sources of Working Capital:

Long-term sources can also be divided into internal and external sources.

Long-term Internal Sources

- ➢ Retained profits
- ➢ Provision for depreciation

Long-term External Sources

- ➢ Share capital
- ➢ Long-term loan
- ➢ Debentures

Working Capital Finance Policies:

- ➧ Matching or Hedging Policy
- ➧ Conservative Policy
- ➧ Aggressive Policy

Hedging Policy:

One of the policies by which a firm finances its working capital needs is the hedging policy, also known as matching policy. This policy works in an arrangement where the current assets of the business are used perfectly to match the current liabilities.

As per this approach, fixed and permanent current assets are financed through long-term sources and fluctuating current assets are financed through short-term sources.
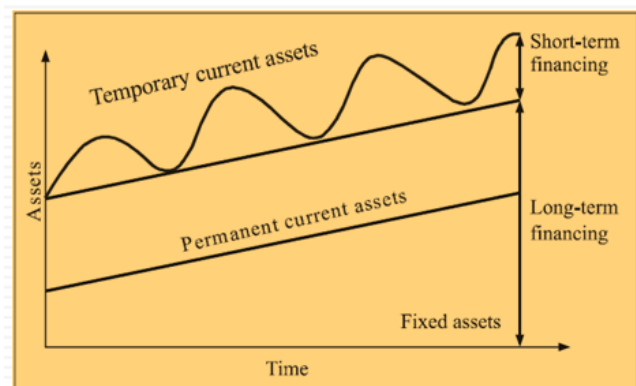

Financing under matching plan

This policy is a medium risk proposition and requires a good amount of attention. For example, if a bank loan is due to be paid after six months, the company will ensure that sufficient amount of cash will be available to repay the loan on the date of maturity even though it may or may not currently have sufficient cash.

In case of a growth firm, the amount of fixed assets and permanent current asset go on increasing with the passage of time but the volume of fluctuating current assets change with the change in production level.

Conservative Policy:

As the name suggests, this policy tries to avoid the risk involved in financing of current assets. Here, relatively high proportions of long-term sources are to be used for financing current assets. The firm not only matches the current assets with current liabilities but also keeps some excess amount to meet any uncertainty.
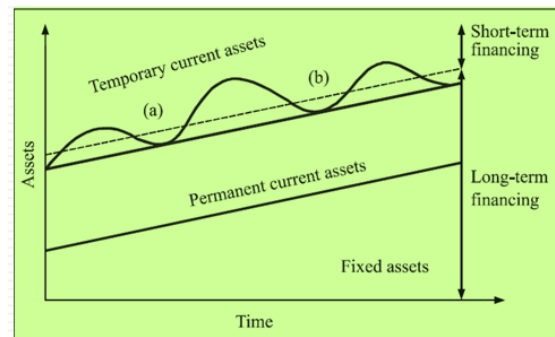

Conservative financing

This is the lowest risk working capital policy and fails to ensure optimum utilization of funds. Hence it cuts down the expected returns of the shareholders.

Aggressive Policy:

Aggressive working capital financing policy is a risky policy that requires maximum amount of investment in current assets. Fluctuating as well as permanent current assets under this policy will be financed through short-term debt. In this policy debt is collected on time and payments to the creditors are made as late as possible.
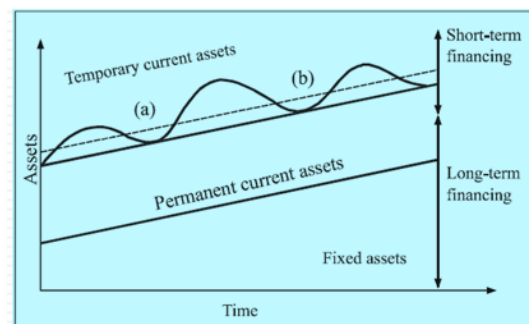
Aggressive financing

3.3. Management of inventory

3.3.1. Meaning and Definition:

Stocks of manufactured products and the material that make up the product. Components of inventory:

⇢   raw materials

⇢   work-in-process

⇢   finished goods

⇢   stores and spares (supplies)

3.3.2. Objectives of Inventory Management

Inventory occupy 30–80% of the total current assets of the business concern. It is also very essential part not only in the field of Financial Management but also it is closely associated with production management. Hence, in any working capital decision regarding the inventories, it will affect both financial and production function of the concern. Hence, efficient management of inventories is an essential part of any kind of manufacturing process concern.

The major objectives of the inventory management are as follows:

• To efficient and smooth production process.

• To maintain optimum inventory to maximize the profitability.

• To meet the seasonal demand of the products

• To avoid price increase in future.

• To ensure the level and site of inventories required.

• To plan when to purchase and where to purchase

• To avoid both over stock and under stock of inventory.

3.3.3. Techniques of Inventory Management

Inventory management consists of effective control and administration of inventories. inventory control refers to a system which ensures supply of required quantity and quality of inventories at the required time and at the same time prevent unnecessary investment in inventories. It needs the following important techniques. Inventory management techniques may be classified into various types:
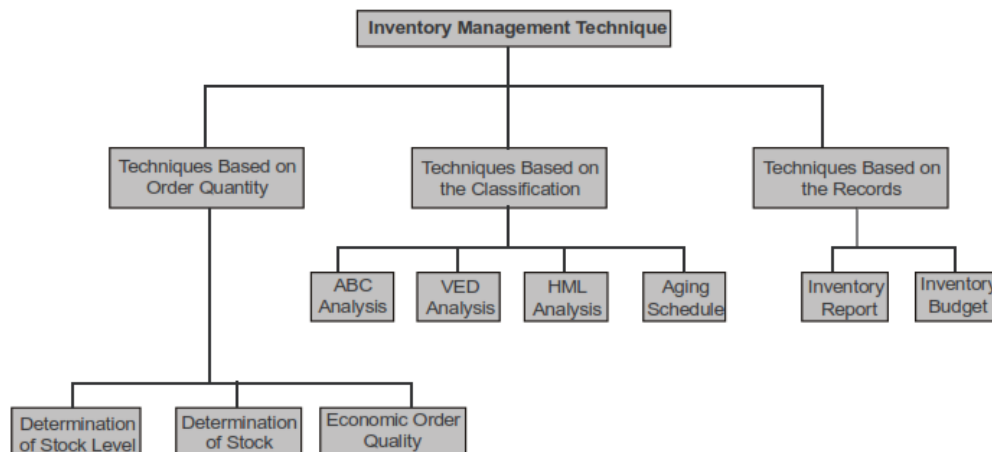
3.3.4. Economic Order Quantity:

Economic Order Quantity (EOQ) is a production formula used to determines the most efficient amount of goods that should be purchased based on ordering and carrying costs. In other words,

it represents the optimal quantity of inventory a company should order each time in order to minimize the costs associated with ordering and holding inventory.

⇢ ordering costs: requisitioning, order placing, transportation, receiving, inspecting and storing, administration

⇢ carrying costs: warehousing, handling, clerical and staff, insurance, depreciation and obsolescence

⇢ ordering and carrying costs trade-off:
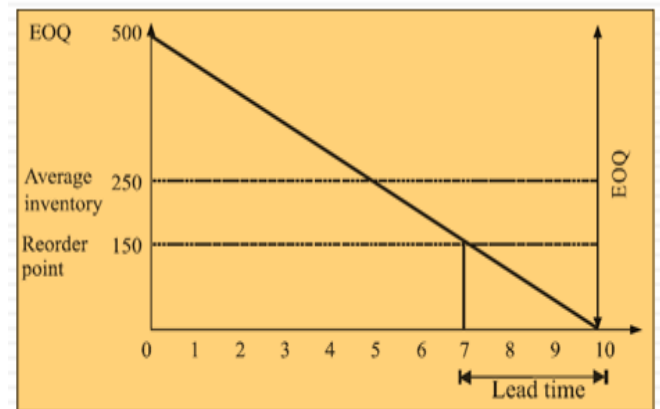
$$EOQ = \sqrt{\frac{2AO}{c}}$$

Where

EOQ = Economic Order Quantity

A = Annual usage of inventories

O = Ordering Cost

C = Carrying cost

Exercise 1

(a) Find out the economic order quantity and the number of orders per year from the following information:

Annual consumption: 36,000 units Purchase price per units: Rs. 54

Ordering cost per order: Rs. 150
Inventory carrying cost is 20% of the average inventory.

Solution

$$Inventory = \sqrt{\frac{2AO}{C}}$$

A = 36,000 units
O = Rs. 150
C = 20% of 54 × 10 × 8

$\sqrt{2 \times 36,000 \times 150}$ = 1,000 units
EOQ = 1,000 units

3.3.5. ABC Analysis:

Inventory optimization in supply chain, *ABC analysis* is an inventory categorization method which consists in dividing items into three categories, A, B and C: A being the most valuable items, C being the least valuable ones. This method aims to draw managers' attention on the critical few (A-items) and not on the trivial many (C-items).

The ABC approach states that, when reviewing inventory, a company should rate items from A to C, basing its ratings on the following rules:

- A-items are goods which annual consumption value is the highest. The top 70-80% of the annual consumption value of the company typically accounts for only 10-20% of total inventory items.

- C-items are, on the contrary, items with the lowest consumption value. The lower 5% of the annual consumption value typically accounts for 50% of total inventory items.

- B-items are the interclass items, with a medium consumption value. Those 15-25% of annual consumption value typically accounts for 30% of total inventory items.

3.3.6. Techniques on the basis of records

A. Inventory budget

It is a kind of functional budget which facilitates the estimated inventory required for the business concern during a particular period. This budget is prepared based on the past experience.

B. Inventory reports

Preparation of periodical inventory reports provides information regarding the order level, quantity to be procured and all other information related to inventories. On the basis of these reports, Management takes necessary decision regarding inventory control and Management in the business concern.

Valuation of Inventories

Inventories are valued at different methods depending upon the situation and nature of manufacturing process. Some of the major methods of inventory valuation are mentioned as follows:

1. First in First Out Method (FIFO)

2. Last in First Out Method (LIFO)

3. Highest in First Out Method (HIFO)

4. Nearest in First Out Method (NIFO)

5. Average Price Method

6. Base Stock Method

7. Standard Price Method

8. Market Price Method.

3.4. Management of Cash

Cash management means a company's ability to allocate its funds efficiently in an effort to cover operating expenses, make investments, repay shareholders, and maintain adequate reserves.

Motives for Holding Cash

1. Transaction motive

It is a motive for holding cash or near cash to meet routine cash requirements to finance transaction in the normal course of business. Cash is needed to make purchases of raw materials, pay expenses, taxes, dividends etc.

2. Precautionary motive

It is the motive for holding cash or near cash as a cushion to meet unexpected contingencies. Cash is needed to meet the unexpected situation like, floods strikes etc.

3. Speculative motive

It is the motive for holding cash to quickly take advantage of opportunities typically outside the normal course of business. Certain amount of cash is needed to meet an opportunity to purchase raw materials at a reduced price or make purchase at favorable prices.

4. Compensating motive

It is a motive for holding cash to compensate banks for providing certain services or loans. Banks provide variety of services to the business concern, such as clearance of cheque, transfer of funds etc.

Cash Management Techniques

Managing cash flow constitutes two important parts:

A. Speedy Cash Collections.

B. Slowing Disbursements.

Speedy Cash Collections

Business concern must concentrate in the field of Speedy Cash Collections from customers. For that, the concern prepares systematic plan and refined techniques. These techniques aim at, the customer who should be encouraged to pay as quickly as possible and the payment from customer without delay. Speedy Cash Collection business concern applies some of the important techniques as follows:

Prompt Payment by Customers

Business concern should encourage the customer to pay promptly with the help of offering discounts, special offer etc. It helps to reduce the delaying payment of customers and the firm can avoid delays from the customers. The firms may use some of the techniques for prompt payments like billing devices, self address cover with stamp etc.

Early Conversion of Payments into Cash

Business concern should take careful action regarding the quick conversion of the payment into cash. For this purpose, the firms may use some of the techniques like postal float, processing float, bank float and deposit float.

Concentration Banking

It is a collection procedure in which payments are made to regionally dispersed collection centers, and deposited in local banks for quick clearing. It is a system of decentralized billing and multiple collection points.

Lock Box System

It is a collection procedure in which payers send their payment or cheques to a nearby post box that is cleared by the firm's bank. Several times that the bank deposit the cheque in the firms account. Under the lock box system, business concerns hire a post office lock box at important collection centers where the customers remit payments. The local banks are authorized to open the box and pick up the remittances received from the customers.

As a result, there is some extra savings in mailing time compared to concentration bank.

Slowing Disbursement

An effective cash management is not only in the part of speedy collection of its cash and receivables but also it should concentrate to slowing their disbursement of cash to the customers or suppliers. Slowing disbursement of cash is not the meaning of delaying the payment or avoiding the payment. Slowing disbursement of cash is possible with the help of the following methods:

1. Avoiding the early payment of cash

The firm should pay its payable only on the last day of the payment. If the firm avoids early payment of cash, the firm can retain the cash with it and that can be used for other purpose.

2. Centralised disbursement system

Decentralized collection system will provide the speedy cash collections. Hence centralized disbursement of cash system takes time for collection from our accounts as well as we can pay on the date.

Cash Management Cycle:
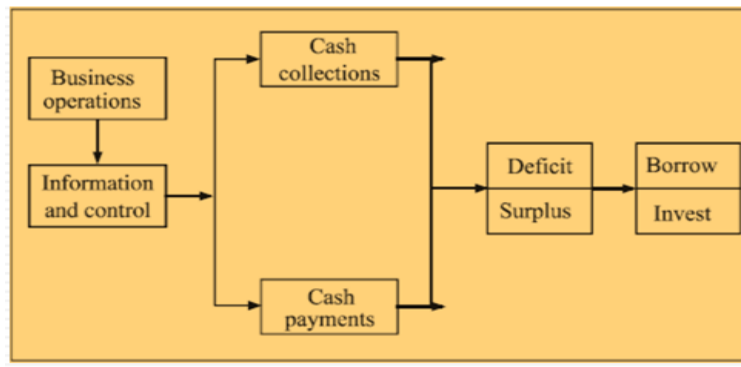
Cash Management Models

Cash management models analyse methods which provide certain framework as to how the cash management is conducted in the firm. Cash management models are the

development of the theoretical concepts into analytical approaches with the mathematical applications. There are three cash management models which are very popular in the field of finance.

Boumol Model of Cash Management:

Baumol model of cash management helps in determining a firm's optimum cash balance under certainty. It is extensively used and highly useful for the purpose of cash management. As per the model, cash and inventory management problems are one and the same.

William J. Baumol developed a model (The transactions Demand for Cash: An Inventory Theoretic Approach) which is usually used in Inventory management & cash management. Baumol model of cash managementtrades off between opportunity cost or carrying cost or holding cost & the transaction cost. As such firm attempts to minimize the sum of the holding cash & the cost of converting marketable securities to cash relevance

Assumptions: There are certain assumptions or ideas that are critical with respect to the Baumol model of cash management:

- The particular company should be able to change the securities that they own into cash, keeping the cost of transaction the same. Under normal circumstances, all such deals have variable costs and fixed costs.

- The company is capable of predicting its cash necessities. They should be able to do this with a level of certainty. The company should also get a fixed amount of money. They should be getting this money at regular intervals.

- The company is aware of the opportunity cost required for holding cash. It should stay the same for a considerable length of time.

- The company should be making its cash payments at a consistent rate over a certain period of time. In other words, the rate of cash outflow should be regular.

Use of Baumol Model

The Baumol model enables companies to find out their desirable level of cash balance under certainty. The Baumol model of cash management theory relies on the trade-off between the liquidity provided by holding money (the ability to carry out transactions) and the interest foregone by holding one's assets in the form of non-interest bearing money. The key variables of the demand for money are then the nominal interest rate, the level of real income which corresponds to the amount of desired transactions and to a fixed cost of transferring one's wealth between liquid money and interest bearing assets.

Applicabiltiy:

The firm incurs a holding cost for keeping the cash balance. It is an opportunity cost; that is, the return foregone on the marketable securities. If the opportunity cost is k, then the firm's holding cost for maintaining an average cash balance is as follows:

$$\text{Holding cost} = k(C/2)$$

The firm incurs a transaction cost whenever it converts its marketable securities to cash. Total number of transactions during the year will be total funds requirement, T, divided by the cash balance, C, i.e., T/C. The per transaction cost is assumed to be constant. If per transaction cost is c, then the total transaction cost will be:
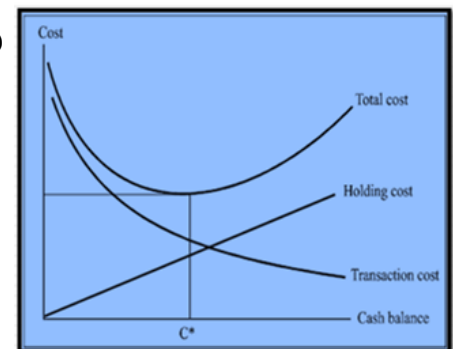
$$\text{Transaction cost} = c(T/C)$$

The total annual cost of the demand for cash will be:

$$\text{Total cost} = k(C/2) + c(T/C)$$

The optimum cash balance, C^*, is obtained when the total cost is minimum. The formula for the optimum cash balance is as follows:

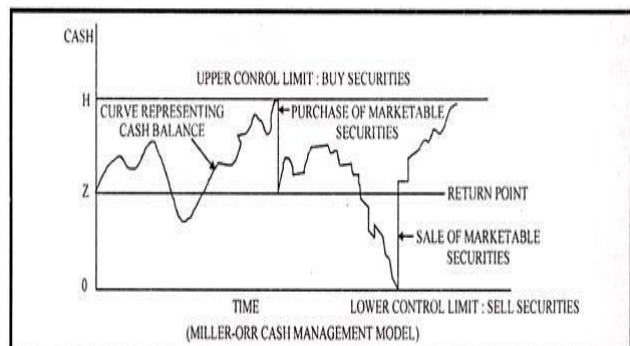**Cost trade-off: Baumol's model**

$$C^* = \sqrt{\frac{2cT}{k}}$$

Miller and Orr model:

Baumol's model is based on the basic assumption that the size and timing of cash flows are known with certainty. This usually does not happen in practice. The cash flows of

a firm are neither uniform nor certain. The Miller and Orr model overcomes the shortcomings of Baumol model.

M.H. Miller and Daniel Orr (A Model of the Demand for Money) expanded on the Baumol model and developed Stochastic Model for firms with uncertain cash inflows and cash outflows.

The Miller and Orr (MO) model provides two control limits-the upper control limit and the lower control limit along-with a return point as shown in the figure.

When the cash balance touches the upper control limit (h), markable securities are purchased to the extent of hz to return back to the normal cash balance of z. In the same manner when the cash balance touches lower control limit (o), the firm will sell the marketable securities to the extent of oz to again return to the normal cash balance.

The spread between the upper and lower cash balance limits (called z) can be computed using Miller-Orr model as below:

$$Z = 3\left(\frac{3}{4} \times \frac{\text{Transaction Cost} \times \text{Variance of Cash Flows}}{\text{Interest Rate}}\right)^{\frac{1}{3}}$$

$$\text{and, Return Point} = \text{Lower Limit} + \frac{\text{Spread }(Z)}{3}$$

Example: A company has a policy of maintaining a minimum cash balance of Rs 1, 00,000. The standard deviation in daily cash balances is Rs 10,000. The interest rate on a daily basis is 0.01%. The transaction cost for each sale or purchase of securities is Rs 50. Compute the upper control limit and the return point as per the Miller-Orr model.

$$= 3\left(\frac{3}{4} \times \frac{50 \times (10,000)^2}{.0001}\right)^{\frac{1}{3}}$$

= ₹ 1,00,415

Thus, the upper control limit of cash balance is

= ₹ 1,00,000 + ₹ 1,00,415 = ₹ 2,00,415

And, the return point is

$$= \text{Lower Limit} + \frac{\text{Spread}}{3}$$

= ₹ 1,00,000 + 1,00,415/3

= ₹ 1,33,472

3.5. Management of Receivables

The term receivable is defined as debt owed to the concern by customers arising from sale of goods or services in the ordinary course of business. Receivables are also one of the major parts of the current assets of the business concerns. It arises only due to credit sales to customers, hence, it is also known as Account Receivables or Bills Receivables.

Management of account receivable is defined as the process of making decision resulting to the investment of funds in these assets which will result in maximizing the overall return on the investment of the firm.

The objective of receivable management is to promote sales and profit until that point is reached where the return on investment in further funding receivables is less than the cost of funds raised to finance that additional credit.

The costs associated with the extension of credit and accounts receivables are identified as follows:

A. Collection Cost

B. Capital Cost

C. Administrative Cost

D. Default Cost.

Collection Cost

This cost incurred in collecting the receivables from the customers to whom credit sales have been made.

Capital Cost

This is the cost on the use of additional capital to support credit sales which alternatively could have been employed elsewhere.

Administrative Cost

This is an additional administrative cost for maintaining account receivable in the form of salaries to the staff kept for maintaining accounting records relating to customers, cost of investigation etc.

Default Cost

Default costs are the over dues that cannot be recovered. Business concern may not be able to recover the over dues because of the inability of the customers.

Factors Considering the Receivable Size

Receivables size of the business concern depends upon various factors. Some of the important factors are as follows:

1. Sales Level

Sales level is one of the important factors which determines the size of receivable of the firm. If the firm wants to increase the sales level, they have to liberalise their credit policy and terms and conditions. When the firms maintain more sales, there will be a possibility of large size of receivable.

2. Credit Policy

Credit policy is the determination of credit standards and analysis. It may vary from firm to firm or even some times product to product in the same industry. Liberal credit policy leads to increase the sales volume and also increases the size of receivable. Stringent credit policy reduces the size of the receivable.

3. Credit Terms

Credit terms specify the repayment terms required of credit receivables, depend upon the credit terms, size of the receivables may increase or decrease. Hence, credit term is one of the factors which affects the size of receivable.

4. Credit Period

It is the time for which trade credit is extended to customer in the case of credit sales. Normally it is expressed in terms of 'Net days'.

5. Cash Discount

Cash discount is the incentive to the customers to make early payment of the due date. A special discount will be provided to the customer for his payment before the due date.

6. Management of Receivable

It is also one of the factors which affect the size of receivable in the firm. When the management involves systematic approaches to the receivable, the firm can reduce the size of receivable.

3.6. Committee reports on bank finance

The following committees were especially appointed for the purpose to administer the working capital.

1. Dheja Committee Report 1969
2. Tandon Committee Report 1975
3. Chore Committee Report 1980
4. Marathe Committee Report 1984

The various committee report implications are the following:

1. Dheja Committee Report 1969

"The study carried out on the credit need of the industry and trade and how that needs inflated and such trends were checked" by the under the chairmanship of Dheja Committee.

Findings

1. General tendency was found among the firms to avail the bank credit more than their requirements.

2. Another tendency was among them that the short term credit was generally made use of by thee for the acquisition of the long term assets

3. The lending through cash credit should be done on the basis of security in order to assess the financial position of the firm

Recommendations

1. Appraisal should be done by the bankers on the present and future performance of the firms

2. The total dealings are segmented into two categories viz core and short-term needs

3. The committee suggested the firms to maintain only one account with the one banker For huge amount of borrowing, consortium was suggested among the bankers to lend the corporate borrowers

2. Tandon Committee

The next committee was appointed Tandon Committee 1975, in an intention of granting loans and advances to the industry on the need basis through the study of the development proceeds only in order to improve the weaker section of the people.

Findings of the Committee

1. The bank should not reveal this much only to lent to the requirements of the firm in accordance with lending policy, in spite of that the banks were expected to lend to the tune of firm's requirement.

2. It should be treated as supplementary source of finance but not as major source of finance

3. Loans were lent only in accordance on the basis of the securities produced by the borrower but not on basis of level of operations

4. Security compliance wont provide any safety to the banks but the periodical follow up only should facilitate the banker to get back the amount of loans and advances lent

Recommendations:

It reached the land mark in studying the need of the industries towards the requirements of the working capital. The committee has submitted its report on 9th Aug, 1975 by studying the lending policies.

1. Necessary information about the future operations are to be supplied

2. The supporting current assets should be shown to the banker at the moment of borrowing

3. The bank should understand that the bank credit is only for the purposes to meet out the needs of the borrower but not for any other.

3. Chore Committee Report 1979

This committee especially constituted only for the purpose to study the sanctionable limits of the banker and the extent of the loan amount utilization of the borrower. The another purpose of the committee to appoint that to provide the alternate ways and means to afford credit facility to the industries to enhance the productive activities in the country.

1. Continuance of the existing three system of credits by the banker viz cash credit, loans and bills
2. No need to bifurcate the cash credit accounts of the borrower for the implementation of the differential rate of interest
3. According to the specifications of the borrower, the banker should come to one conclusion which in normal peak level and non peak level of operations only to the tune of operations
4. No frequent sanction of ad hoc limits of borrowing from the banker
5. The overdependence on the bank credit should be lessened among the practices of the industrialists through emphasizing the need of term finance.

4. Marathe Committee Report 1984

The fourth committee is Marathe committee which was instituted by the Reserve bank of India and it submitted the report on 1983. The recommendations were implemented by the Government of India from April 1,1984.

Recommendations

1. Reasonability of the projection statements are to be studied by the banks more carefully
2. Current assets and liabilities are to be classified in accordance with the norms issued by the Reserve bank of India
3. Maintenance of the current assets ratio 1.33:1
4. Timely supply the information stipulated by the bankers
5. Apt supply of annual accounting information

3.7. dimensions of working capital management

Working capital is also called revolving, circulating or short term capital. Every business require the funds for its establishment which is called fixed capital and require funds to carry out its day to day operations like purchase of raw material, payment of wages etc. which is called working capital. Thus, working capital is the capital required to finance the short term or current assets such as cash, securities, debtors, stock. It refers to current assets – current liabilities. The aim of working capital management is to manage the current assets and current liabilities of the firm in a satisfactory manner. The working capital should neither be excessive nor be inadequate. As the

working capital management policies has effect upon the liquidity, profitability and health of the organization. It has three dimensions.

Dimension I: It is concerned with formulation of policies relating to risk, profitability and liquidity.

Dimension II: It is concerned with the decision about the composition and level of current assets.

Dimension III: It is concerned with the decision about the composition and level of current liabilities.

Unit IV: capital structure theories: traditional and MM hypotheses; determining capital structure in practice; capital structure planning. Cost of capital: meaning of significance of cost of capital; calculation of cost of debt, preference capital, equity capital and retained earnings; operating and financial leverages; measurement of leverages; effects of operating and financial leverages on profit.

4.1.Capital Structure Definition and Concept

Capital structure is the mix of the long-term sources of funds used by a firm. It is made up of debt and equity securities and refers to permanent financing of a firm. It is composed of long-term debt, preference share capital and shareholders' funds.

Importance of Capital structure:

Value Maximization:

Capital structure maximizes the market value of a firm, i.e. in a firm having a properly designed capital structure the aggregate value of the claims and ownership interests of the shareholders are maximized.

Cost Minimization:

Capital structure minimizes the firm's cost of capital or cost of financing. By determining a proper mix of fund sources, a firm can keep the overall cost of capital to the lowest.

Increase in Share Price:

Capital structure maximizes the company's market price of share by increasing earnings per share of the ordinary shareholders. It also increases dividend receipt of the shareholders.

Investment Opportunity:

Capital structure increases the ability of the company to find new wealth- creating investment opportunities. With proper capital gearing it also increases the confidence of suppliers of debt.

Growth of the Country:

Capital structure increases the country's rate of investment and growth by increasing the firm's opportunity to engage in future wealth-creating investments.

4.2.Theories of Capital Structure
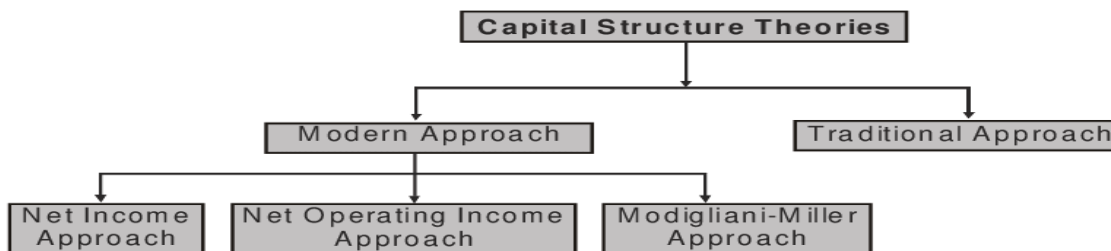
Traditional Approach

It is the mix of Net Income approach and Net Operating Income approach. Hence, it is also called as intermediate approach. According to the traditional approach, mix of debt and equity capital can increase the value of the firm by reducing overall cost of capital up tocertain level of debt. Traditional approach states that the K decreases only within the responsible limit of financial leverage and when reaching the minimum level, it starts increasing with financial leverage.

Assumptions

Capital structure theories are based on certain assumption to analysis in a single and convenient manner:

• There are only two sources of funds used by a firm; debt and shares.

• The firm pays 100% of its earning as dividend.

• The total assets are given and do not change.

• The total finance remains constant.

• The operating profits (EBIT) are not expected to grow.

• The business risk remains constant.

• The firm has a perpetual life.

• The investors behave rationally.

Exercise 1

ABC Ltd., needs Rs. 30,00,000 for the installation of a new factory. The new factory expects to yield annual earnings before interest and tax (EBIT) of Rs.5,00,000. In choosing a financial plan, ABC Ltd., has an objective of maximizing earnings per share (EPS).

The company proposes to issuing ordinary shares and raising debit of Rs. 3,00,000 and Rs. 10,00,000 of Rs. 15,00,000. The current market price per share is Rs. 250 and is expected to drop to Rs. 200 if the funds are borrowed in excess of Rs. 12,00,000. Funds can be raised at the following rates.

–up to Rs. 3,00,000 at 8%

–over Rs. 3,00,000 to Rs. 15,000,00 at 10%

–over Rs. 15,00,000 at 15%

Assuming a tax rate of 50% advise the company.

<u>Solution</u>

Earnings Before Interest and Tax (BIT) less Interest Earnings Before Tax less: <u>Tax@50%</u>.

	Alternatives		
	I	II	III
	(Rs. 3,00,000 debt)	Rs. 10,00,000 debt)	(Rs. 15,00,000 debt)
	5,00,000	5,00,000	5,00,000
	24,000	1,00,000	2,25,000
	4,76,000	4,00,000	2,75,000
	2,38,000	2,00,000	1,37,500
	2,38,000	2,00,000	1,37,500
	27,00,000	20,00,000	15,00,000
	250	250	200
	10800	8,000	7,500
	2,38,000	2,00,000	1,37,500
No. of shares	10,800	8,000	7,500
Earnings per share	22.03	25	18.33

The secure alternative which gives the highest earnings per share is the best. Therefore the company is advised to revise Rs. 10,00,000 through debt amount Rs. 20,00,000 through ordinary shares.

Exercise 2

Compute the market value of the firm, value of shares and the average cost of capital from the following information.

Net operating income Rs. 1,00,000

Total investment Rs. 5,00,000

Equity capitalization Rate:

(a) If the firm uses no debt 10%

(b) If the firm uses Rs. 25,000 debentures 11%

(c) If the firm uses Rs. 4,00,000 debentures 13%

Assume that Rs. 5,00,000 debentures can be raised at 6% rate of interest whereas

Rs. 4,00,000 debentures can be raised at 7% rate of interest.

Solution

Computation of market value of firm value of shares and the average cost of capital.

Particulars	(a) No Debt	(b) Rs. 2,50,000 6% debentures	(c) Rs. 4,00,000 7% debentures
Net operating system	1,00,000	1,00,000	1,00,000
(–) Interest (i.e.) Cost of debt	–	15,000	28,000
Earnings available to Equity shareholders	1,00,000	85,000	72,000
Equity Capitalization Rate	10%	11%	13%
Market value of shares	$10,000 \times \dfrac{10}{100}$	$85,000 \times \dfrac{100}{11}$	$72,000 \times \dfrac{100}{13}$
Market Value of firm	Rs. 10,00,000/- 10,00,000 1,00,000	Rs. 772727/- 10,22,727 1,00,000	Rs. 553846/- 9,53,846 1,00,000
Average cost of capital $\dfrac{\text{Earnings}}{\text{Value of the firm}}$	$\dfrac{1,00,000}{10,00,000} \times 100$	$\dfrac{1,00,000}{10,22,727} \times 100$	$\dfrac{1,00,000}{9,53,846} \times 100$
$\dfrac{\text{EBIT}}{\text{V}}$	=10%	=9.78%	=10.48%

Comments

From the above data, if debt of Rs. 2,50,000 is used, the value of the firm increases and the overall cost of capital decreases. But, if more debt is used to finance in place of equity i.e., Rs. 4,00,000 debentures, the value of the firm decreases and the overall cost of capital increases.

Net Income (NI) Approach

Net income approach suggested by the Durand. According to this approach, the capital structure decision is relevant to the valuation of the firm. In other words, a change in the capital structure leads to a corresponding change in the overall cost of capital as well as the total value of the firm.

According to this approach, use more debt finance to reduce the overall cost of capital and increase the value of firm.

Net income approach is based on the following three important assumptions:

1. There are no corporate taxes.

2. The cost debt is less than the cost of equity.

3. The use of debt does not change the risk perception of the investor.

Exercise 3

(a) A Company expects a net income of Rs. 1,00,000. It has Rs. 2,50,000, 8% debentures. The equality capitalization rate of the company is 10%. Calculate the value of the firm and overall capitalization rate according to the net income approach (ignoring income tax).

(b) If the debenture debts are increased to Rs. 4,00,000. What shall be the value of the firm and the overall capitalization rate?

Solution

(a) Capitalization of the value of the firm

	Rs.
Net income	1,00,000
Less: Interest on 8% Debentures of Rs. 2,50,000	20,000
Earnings available to equality shareholders	80,000
Equity capitalization rate	10%

$$= \frac{80,000}{10} \times 100$$

where

$V = S + B$

$V = $ Value of firm

$S = $ Market value of equity

$B = $ Market value of debt

Market value of the equity can be ascertained by the following formula:

$$S = \frac{NI}{K_e}$$

where

$NI = $ Earnings available to equity shareholder

$K_e = $ Cost of equity/equity capitalization rate

Format for calculating value of the firm on the basis of NI approach.

Particulars	Amount
Net operating income (EBIT)	XXX
Less: interest on debenture (i)	XXX
Earnings available to equity holder (NI)	XXX
Equity capitalization rate (K_e)	XXX
Market value of equity (S)	XXX
Market value of debt (B)	XXX
Total value of the firm (S+B)	XXX
Overall cost of capital = K_o = EBIT/V(%)	XXX%

Market value of equity	=	8,00,000
Market value of debentures	=	2,50,000
Value of the firm	=	10,50,000

Calculation of overall capitalization rate

Overall cost of capital (K_o) = $\dfrac{\text{Earnings}}{\text{Value of the firm}}$ $\dfrac{\text{EBIT}}{V}$

$$= \dfrac{1,00,000}{10,50,000} \times 100$$

$$= 9.52\%$$

(b) Calculation of value of the firm if debenture debt is raised to Rs. 3,00,000.

	Rs.
Net income	1,00,000
Less: Interest on 8% Debentures of Rs. 4,00,000	32,000
Equity Capitalization rate	68,000
	10%

Market value of equity	= $68,000 \times \dfrac{100}{10}$ = 6,80,000	
	= 6,80,000	
Market value of Debentures	= 4,00,000	
Value of firm	= 10,80,000	
Overall cost of capital	= $\dfrac{1,00,000}{10,80,000} \times 10$	
	= 9.26%	

Thus, it is evident that with the increase in debt financing, the value of the firm has increased and the overall cost of capital has increased.

Net Operating Income (NOI) Approach

Another modern theory of capital structure, suggested by **Durand**. This is just the opposite to the Net Income approach. According to this approach, Capital Structure decision is irrelevant to the valuation of the firm. The market value of the firm is not at all affected by the capital structure changes.

According to this approach, the change in capital structure will not lead to any change in the total value of the firm and market price of shares as well as the overall cost of capital.

NI approach is based on the following important assumptions;
The overall cost of capital remains constant;
There are no corporate taxes;
The market capitalizes the value of the firm as a whole;
Value of the firm (V) can be calculated with the help of the following formula

$$V = \dfrac{EBIT}{K_o}$$

Where,

V = Value of the firm
$EBIT$ = Earnings before interest and tax
K_o = Overall cost of capital

Exercise 4

XYZ expects a net operating income of Rs. 2,00,000. It has 8,00,000, 6% debentures. The overall capitalization rate is 10%. Calculate the value of the firm and the equity capitalization rate (Cost of Equity) according to the net operating income approach.

If the debentures debt is increased to Rs. 10,00,000. What will be the effect on volume of the firm and the equity capitalization rate?

Solution

Net operating income = Rs. 2,00,000

Overall cost of capital = 10%

Market value of the firm (V)

$$= \frac{EBIT}{K_o}$$

$$= 2,00,000 \times \frac{100}{10} = Rs.\ 20,00,000$$

Market value of the firm	= Rs. 20,00,000
Less: market value of Debentures =	Rs. 8,00,000
	12,00,000

Equity capitalization rate (or) cost of equity (K_e)

$$= \frac{EBIT - I}{V - D}$$

Where, V = value of the firm

D = value of the debt capital

$$= \frac{2,00,000 - 48,000}{20,00,000 - 8,00,000} \times 100$$

$$= 12.67\%$$

If the debentures debt is increased to Rs. 10,00,000, the value of the firm shall remain changed to Rs. 20,00,000. The equity capitalization rate will increase as follows:

$$= \frac{EBIT - I}{V - D}$$

$$= \frac{2,00,000 - 60,000}{20,00,000 - 10,00,000} \times 100$$

$$= \frac{1,40,000}{10,00,000} \times 100$$

$$= 14\%.$$

Modigliani and Miller, two professors in the 1950s, studied capital-structure theory intensely. From their analysis, they developed the capital-structure irrelevance proposition. Essentially, they hypothesized that in perfect markets, it does not matter what capital structure a company uses to finance its operations. They theorized that the market value of a firm is determined by its

earning power and by the risk of its underlying assets, and that its value is independent of the way it chooses to finance its investments or distribute dividends. The basic M&M proposition is based on the following key assumptions:

- No taxes
- No transaction costs
- No bankruptcy costs
- Equivalence in borrowing costs for both companies and investors
- Symmetry of market information, meaning companies and investors have the same information
- No effect of debt on a company's earnings before interest and taxes
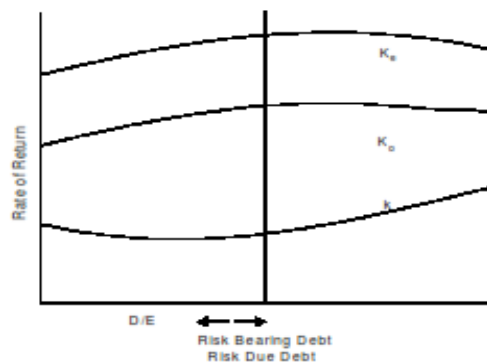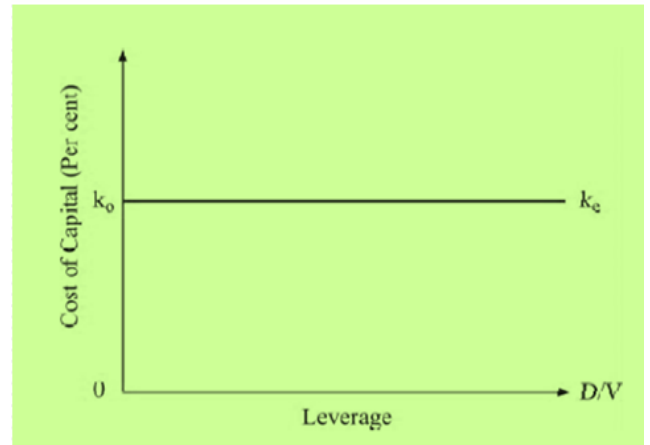
Criticism on MM Theory:

- Lending and borrowing rates discrepancy
- Non-substitutability of personal and corporate leverages
- Transaction costs
- Institutional restrictions
- Existence of corporate tax

Exercise 6

There are two firms 'A' and 'B' which are exactly identical except that A does not use any debt in its financing, while B has Rs. 2,50,000 , 6% Debentures in its financing. Both the firms have earnings before interest and tax of Rs. 75,000 and the equity capitalization rate is 10%. Assuming the corporation tax is 50%, calculate the value of the firm.

Solution

The market value of firm A which does not use any debt.

$$V_u = \frac{EBIT}{K_o}$$

$$= \frac{75,000}{10/100} = 75,000 \times 100/10$$

$$= Rs. \ 7,50,000$$

The market value of firm B which uses debt financing of Rs. 2,50,000

$$V_t = V_u + t$$

$$V_u = 7,50,000, \qquad t = 50\% \ of \ Rs. \ 2,50,000$$

$$= 7,50,000 + 1,25,000$$

$$= Rs. \ 8,75,000$$

4.3. Determining capital structure in practice

Various factors determining capital structure are:

Financial Leverage:

The use of long-term fixed interest bearing debt and preference share capital along with equity share capital is called financial leverage or trading on equity. The use of long-term debt increases magnifies the earnings per share if the firm yields a return higher than the cost of debt.

The earnings per share also increase with the use of preference share capital but due to the fact that interest is allowed to be deducted while computing tax, the leverage impact of debt is much more. However, leverage can operate adversely also if the rate of interest on long-term loans is more than the expected rate of earnings of the firm. Therefore, it needs caution to plan the capital structure of a firm.

Growth and Stability of Sales:

The capital structure of a firm is highly influenced by the growth and stability of its sales. If the sales of a firm are expected to remain fairly stable, it can raise a higher level of debt. Stability of sales ensures that the firm will not face any difficulty in meeting its fixed commitments of interest payment and repayments of debt.

Similarly, the rate of growth in sales also affects the capital structure decision. Usually greater the rate of growth of sales, greater can be the use of debt in the financing of firm. On the other hand, if the sales of a firm are highly fluctuating or declining, it should not employ, as far as possible, debt financing in its capital structure.

Cost of Capital:

Every rupee invested in a firm has a cost. Cost of capital refers to the minimum return expected by its suppliers. The capital structure should provide for the minimum cost of capital. The main sources of finance for a firm are equity, preference share capital and debt capital.

The return expected by the suppliers of capital depends upon the risk they have to undertake.

Usually, debt is a cheaper source of finance compared to preference and equity capital due to:

(i) Fixed rate of interest on debt;

(ii) Legal obligation to pay interest;

(iii) Repayment of loan and priority in payment at the time of winding up of the company.

On the other hand, the rate of dividend is not fixed on equity capital. It is not a legal obligation to pay dividend and the equity shareholders undertake the highest risk as they cannot be paid back except at the winding up of the company and that too after paying all other obligations.

Preference capital is also cheaper than equity because of lesser risk involved and a fixed rate of dividend payable to preference shareholders. But debt is still a cheaper source of finance than even preference capital because of tax advantage due to deductibility of interest. While formulating a capital structure, an effort must be made to minimize the overall cost of capital.

Risk:

There are two types of risk that are to be considered while planning the capital structure of a firm.

(i) Business risk and

(ii) Financial risk.

Business risk refers to the variability of earnings before interest and taxes. Business risk can be internal as well as external. Internal risk is caused due to improper product mix, non-availability of raw materials, incompetence to face competition, absence of strategic management etc.

Internal risk is associated with the efficiency with which a firm conducts its operations within the broader environment thrust upon it. External business risk arises due to change in operating conditions caused by conditions thrust upon the firm which are beyond its control e.g., business cycles, governmental controls, changes in business laws, international market conditions etc.

Financial risk refers to the risk of a firm that may not be able to cover its fixed financial costs. Financial risk is associated with the capital structure of a company. A company with no debt financing has no financial risk. The extent of financial risk depends on the leverage of the firm's capital structure.

When a firm uses more and more of debt in its capital mix the financial risk of the firm increases. It may not be able to pay the fixed interest charges to the suppliers of debt and they may force to

liquidate. Thus, a firm has to reach a balance between the financial risk and the risk of non-employment of debt capital to increase its market value.

Cash Flow Ability to Service Debt:

A firm which shall be able to generate larger and stable cash inflows can employ more debt in its capital structure as compared to the one which has unstable and lesser ability to generate cash inflows. Debt financing implies burden of fixed charge due to the fixed payment of interest and the principal.

Whenever a firm wants to raise additional funds, it should estimate, project its future cash inflows to ensure the coverage of fixed charges. Fixed Charges Coverage Ratio and Interest Coverage Ratio may be calculated for this purpose.

Nature and Size of a Firm:

Nature and size of a firm also influence its capital structure. All public utility concern has different capital structure as compared to other manufacturing concern. Public utility concerns may employ more of debt because of stability and regularity of their earnings.

On the other hand, a concern which cannot provide stable earnings due to the nature of its business will have to rely mainly on equity capital; similarly, small companies have to depend mainly upon owned capital as it is very difficult for them to raise long-term loans on reasonable terms and also cannot issue equity and preference shares at ease to the public.

Control:

Whenever additional funds are required by a firm, the management of the firm wants to raise the funds without any loss of control over the firm. In case the funds are raised through the issue of equity shares, the control of the existing shareholders is diluted.

Hence, they might raise the additional funds by way of fixed interest bearing debt and preference share capital. Preference shareholders and debenture holders do not have the voting right.

Hence, from the point of view of control, debt financing is recommended. But, depending largely upon debt financing may create other problems, such as, too much restriction imposed upon by the lenders or suppliers of finance and ultimate bankruptcy of the firm due to heavy burden of interest and fixed charges. This may result into even a complete loss of control by way of liquidation of the company.

Flexibility:

Capital structure of a firm should be flexible, i.e., it should be such as to be capable of being adjusted according to the needs of the changing conditions. It should be possible to raise additional funds, whenever the need be, without much of difficulty and delay.

A firm should arrange its capital structure in such a manner, that it can substitute one form of financing by another. Redeemable preference shares and convertible debentures may be preferred on account of flexibility. Preference shares and debentures which can be redeemed at the discretion of the firm offer the highest flexibility in the capital structure.

Requirements of Investors:

The requirement of investors is another factor that influences the capital structure of a firm. It is necessary to meet the requirements of both institutional as well as private investors when debt financing is used. Investors are generally classified under three kinds, i.e., bold investors, cautious investors and less cautious investors.

Bold investors are willing to take all types of risk, are entreprising in nature, and prefer capital gains and control and hence equity share capital is best suited to them. Investors who are over-cautious and conservative prefer safety of investment and stability in returns and hence debentures would satisfy such overcautious investors.

Investors which are less cautious in approach will prefer preference share capital which provides stability in returns.

Capital Market Conditions:

Capital market conditions do not remain the same forever. Sometimes there may be depression while at other times there may be boom in the market. The choice of the securities is also influenced by the market conditions.

If the share market is depressed and there are pessimistic business conditions, the company should not issue equity shares as investors would prefer safety. But in case there is boom period, it would be advisable to issue equity shares. Proper timing of issue of securities also saves in costs of raising funds.

Assets Structure:

The liquidity and the composition of assets should also be kept in mind while selecting the capital structure. If fixed assets constitute a major portion of the total assets of the company, it may be possible for the company to raise more of long term debts.

Purpose of Financing:

If funds are required for a productive purpose, debt financing is suitable and the company should issue debentures as interest can be paid out of the profits generated from the investment. However, if the funds are required for unproductive purpose or general development on permanent basis, we should prefer equity capital.

Period of Finance:

The period for which the finances are required is also an important factor to be kept in mind while selecting an appropriate capital mix. If the finances are required for a limited period of, say, seven years, debentures should be preferred to shares.

Redeemable preference shares may also be used for a limited period finance, if found suitable otherwise. However, in case funds are needed on permanent basis, equity share capital is more appropriate.

Costs of Floatation:

Although not very significant, yet costs of floatation of various kinds of securities should also be considered while raising funds. The cost of floating a debt is generally less than the cost of floating an equity and hence it may persuade the management to raise debt financing. The costs of floating as a percentage of total funds decrease with the increase in size of the issue.

Personal Considerations:

The personal considerations and abilities of the management will have the final say on the capital structure of a firm. Managements which are experienced and are very enterprising do not hesitate to use more of debt in their financing as compared to the less experienced and conservative management.

Corporate Tax Rate:

High rate of corporate taxes on profits compel the companies to prefer debt financing, because interest is allowed to be deducted while computing taxable profits. On the other hand, dividend on shares is not an allowable expense for that purpose.

Legal Requirements:

The Government has also issued certain guidelines for the issue of shares and debentures. The legal restrictions are very significant as these lay down a framework within which capital structure decision has to be made.

4.4.Capital Structure planning

"Capital structure of a company refers to the make-up of its capitalization and it includes all long-term capital resources, viz., shares, loans, reserves and bonds." – Gerstenberg

Capital Structure consists of:

Owned Funds: It belongs to the proprietors It includes share capital, free reserves and surplus.

Borrowed Funds: It consists of long-term borrowings from outside sources. It consists of debentures, bonds and long-term loans provided by banks and term lending institutions.

Equity share capital: Equity share capital 'Risk bearing' capital of the company Shares which do not enjoy special rights in respect of payment of dividend and repayment of capital. Rate of dividend fluctuates depending upon the availability of profits

Advantages:

It represents a permanent source of finance

It does not carry any fixed burden

It enhances the creditworthiness of the firm

Disadvantages:

Its cost is very high

Issue of equity to outsiders causes dilution of control

Preference Shares:

- Shares, which enjoy priorities in the payment of dividend as well as in the repayment of capital.
- Preference shareholders are entitled to receive a fixed rate of dividend
- Preference shareholder is paid back the capital before any payment is made to the equity shareholders.

Types of preference shares:

Participating: shareholders are entitled to participate in surplus profits

Non-participating: shareholders are entitled to receive only a fixed rate of dividend

Redeemable: returnable either at the discretion of the company or at the end of a certain period

Irredeemable: non-returnable

Cumulative: the dividend payable in a year of loss gets carried over to the next year

Non-cumulative: dividend paid if sufficient profits are available or else it lapses.

Convertible: can be converted into equity shares of the company at a certain conversion ratio decided by the company

Non-convertible: cannot be converted into ordinary shares

Advantages:

Preferential rights

Arrears of Unpaid dividend payable

Gives flexibility to the company - Redeemable and Convertible Shares

Disadvantages

Fixed dividend

No control

Debentures

Money received by the issue of debentures is a loan

Debenture is a security issued by a company against the debt.

Debenture holders are the creditors of the company

Interest on debentures has to be paid even if the company makes losses

Debenture holders have no voting rights

No dilution of control

Less risky for shareholders

Advantages

Regular fixed income

Safety and security of investment

Liquidity- easy sale in stock exchange

Conversion into shares

Disadvantages

No control

Fixed returns

Term Loans

There are 3 categories based on Payback period:

- Short term Loans

- Medium term Loans

- Long term Loans

Advantages

Cost lower than share capital

No dilution of control

Backed by security

Disadvantages

No voting rights

Repayment is obligatory

Essentials of optimum capital structure:

Flexibility: the capital structure should facilitate further financing for expansion, replacement, etc.

Economy: the capital structure must ensure the maximum use of leverage at minimum cost

Solvency: the capital structure must provide a balance between different securities so that there is neither excess of debt nor lack of benefits of using the debt.

Efficiency: the capital structure must ensure intensive utilization of available resources.

Simplicity: the capital structure must be made easy to understand by avoiding doubts and complexities.

Safety: the capital structure should ensure safety in the business by maintaining adequate cash ratio (liquidity) in the business.

Control: While designing the capital structure it should be kept in mind that the controlling position of present shareholders remains undisturbed.

EBIT-EPS analysis:

A firm has various options regarding the combinations of various sources to finance its investment activities. The firms may opt to be an all-equity firm (and having no borrowed funds) or equity-preference firm (having no borrowed funds) or any of the numerous possibility of combinations of equity, preference shares and borrowed funds. However, for all these possibilities, the sales level and the level of EBIT is irrelevant as the pattern of financing does not have any bearing on the sales or the EBIT level. In fact, the sales and the EBIT level are affected by the investment decisions.

Given a level of EBIT, a particular combination of different sources of finance will result in a particular EPS and therefore, for different financing patterns, there would be different levels of EPS.

Example:

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	Option 1	Option 2	Option 3	Option 4
Equity share capital	Rs.5,00,000	Rs.2,50,000	Rs.2,50,000	Rs.1,25,000
Preference share capital	---	2,50,000	1,25,00	1,25,000
10% Debentures	---	---	1,25,000	2,50,000
Total Funds	5,00,000	5,00,000	5,00,000	5,00,000
EBIT	1,50,000	1,50,000	1,50,000	1,50,000
- Interest	---	---	12,500	25,000
Profit before Tax	1,50,000	1,50,000	1,37,500	1,25,000
- Tax @ 50%	75,000	75,000	68,750	62,500
Profit after Tax	75,000	75,000	68,750	62,500
- Preference Dividend	---	30,000	15,000	15,000
Profit for Equity shares	75,000	45,000	53,750	47,500
No. of Equity shares (of Rs.100 each)	5000	2500	2500	1250
EPS (Rs.)	15	18	21.5	38

Advantages of EBIT-EPS analysis

Financial Planning:

Use of EBIT-EPS analysis is indispensable for determining sources of funds. In case of financial planning the objective of the firm lies in maximizing EPS. EBIT-EPS analysis evaluates the alternatives and finds the level of EBIT that maximizes EPS.

Comparative Analysis:

EBIT-EPS analysis is useful in evaluating the relative efficiency of departments, product lines and markets. It identifies the EBIT earned by these different departments, product lines and from various markets, which helps financial planners rank them according to profitability and also assess the risk associated with each.

Performance Evaluation:

This analysis is useful in comparative evaluation of performances of various sources of funds. It evaluates whether a fund obtained from a source is used in a project that produces a rate of return higher than its cost.

Determining Optimum Mix:

EBIT-EPS analysis is advantageous in selecting the optimum mix of debt and equity. By emphasizing on the relative value of EPS, this analysis determines the optimum mix of debt and equity in the capital structure. It helps determine the alternative that gives the highest value of

EPS as the most profitable financing plan or the most profitable level of EBIT as the case may be.

Limitations of EBIT-EPS Analysis:

Finance managers are very much interested in knowing the sensitivity of the earnings per share with the changes in EBIT; this is clearly available with the help of EBIT-EPS analysis but this technique also suffers from certain limitations, as described below

No Consideration for Risk:

Leverage increases the level of risk, but this technique ignores the risk factor. When a corporation, on its borrowed capital, earns more than the interest it has to pay on debt, any financial planning can be accepted irrespective of risk. But in times of poor business the reverse of this situation arises—which attracts high degree of risk. This aspect is not dealt in EBIT-EPS analysis.

Contradictory Results:

It gives a contradictory result where under different alternative financing plans new equity shares are not taken into consideration. Even the comparison becomes difficult if the number of alternatives increase and sometimes it also gives erroneous result under such situation.

Over-capitalization:

This analysis cannot determine the state of over-capitalization of a firm. Beyond a certain point, additional capital cannot be employed to produce a return in excess of the payments that must be made for its use. But this aspect is ignored in EBIT-EPS analysis.

Example:

Debarathi Co. Ltd., is planning an expansion programme. It requires Rs 20 lakhs of external financing for which it is considering two alternatives. The first alternative calls for issuing 15,000 equity shares of Rs 100 each and 5,000 10% Preference Shares of Rs 100 each; the second alternative requires 10,000 equity shares of Rs 100 each, 2,000 10% Preference Shares of Rs 100 each and Rs 8,00,000 Debentures carrying 9% interest. The company is in the tax bracket of 50%. You are required to calculate the indifference point for the plans and verify your answer by calculating the EPS.

Solution: Capital Structure

	Plan I (Rs)	Plan II (Rs)
Equity share capital	15,00,000	10,00,000
10% Preference share capital	5,00,000	2,00,000
9% Debentures	–	8,00,000
Total	**20,00,000**	**20,00,000**
Number of equity shares	15,000	10,000

Let, at X level of EBIT, the EPS under both the plan will be same.

EPS under 1st alternative: $\dfrac{X(1-t)-P_d}{N_1} = \dfrac{X(1-0.5)-50,000}{15,000}$

Again, EPS under 2nd alternative: $\dfrac{(X-I)(1-t)-P_d}{N_2} = \dfrac{(X-72,000)(1-0.5)-20,000}{10,000}$

Now, equalizing both the EPS we get:

$$\Rightarrow \quad \frac{X(1-0.5)-50,000}{15,000} = \frac{(X-72,000)(1-0.5)-20,000}{10,000}$$

$$\Rightarrow \quad \frac{0.5X-50,000}{15,000} = \frac{0.5X-36,000-20,000}{10,000}$$

$$\Rightarrow \quad \frac{0.5X-50,000}{3} = \frac{0.5X-56,000}{2}$$

$$\Rightarrow \quad 1.5X-1,68,000 = X-1,00,000$$

$$\therefore \quad X = \frac{68,000}{0.5} = \text{Rs } 1,36,000$$

We may verify the result by calculating EPS under both the plans.

Computation of EPS under Different Plans

	Plan I	Plan II
EBIT	1,36,000	1,36,000
Less: Interest		72,000
EBT	1,36,000	64,000
Less: Tax	68,000	32,000
EAT	68,000	32,000
Less: Preference Dividend	50,000	20,000
Earnings available to equity shareholders	18,000	12,000
No. of equity shares	15,000	10,000
$\therefore$ EPS $= \dfrac{\text{Earning available to equity shareholders}}{\text{Number of equity shares}}$	$\dfrac{18,000}{15,000}$	$\dfrac{12,000}{10,000}$
	= Rs 1.20	= Rs 1.20

4.5. Cost of capital

4.5.1. Meaning and definition:

Cost of capital refers to the opportunity cost of making a specific investment. It is the rate of return that could have been earned by putting the same money into a different investment with equal risk. Thus, the cost of capital is the rate of return required to persuade the investor to make a given investment.

Cost of capital is determined by the market and represents the degree of perceived risk by investors. When given the choice between two investments of equal risk, investors will generally choose the one providing the higher return.

Ezra Solomon defines "Cost of capital is the minimum required rate of earnings or cutoff rate of capital expenditure".

4.5.2. Factors determining Cost of capital:

(a) Demand and supply of capital,

(b) Expected rate of inflation,

(c) Various risk involved, and

(d) Debt-equity ratio of the firm etc.

4.5.3. Importance of Cost of capital

1. Maximization of the Value of the Firm:

For the purpose of maximization of value of the firm, a firm tries to minimise the average cost of capital. There should be judicious mix of debt and equity in the capital structure of a firm so that the business does not to bear undue financial risk.

2. Capital Budgeting Decisions:

Proper estimate of cost of capital is important for a firm in taking capital budgeting decisions. Generally cost of capital is the discount rate used in evaluating the desirability of the investment project. In the internal rate of return method, the project will be accepted if it has a rate of return greater than the cost of capital.

In calculating the net present value of the expected future cash flows from the project, the cost of capital is used as the rate of discounting. Therefore, cost of capital acts as a standard for allocating the firm's investible funds in the most optimum manner. For this reason, cost of capital is also referred to as cut-off rate, target rate, hurdle rate, minimum required rate of return etc.

3. Decisions Regarding Leasing:

Estimation of cost of capital is necessary in taking leasing decisions of business concern.

4. Management of Working Capital:

In management of working capital the cost of capital may be used to calculate the cost of carrying investment in receivables and to evaluate alternative policies regarding receivables. It is also used in inventory management also.

5. Dividend Decisions:

Cost of capital is significant factor in taking dividend decisions. The dividend policy of a firm should be formulated according to the nature of the firm— whether it is a growth firm, normal firm or declining firm. However, the nature of the firm is determined by comparing the internal

rate of return (r) and the cost of capital (k) i.e., r > k, r = k, or r < k which indicate growth firm, normal firm and decline firm, respectively.

6. Determination of Capital Structure:

Cost of capital influences the capital structure of a firm. In designing optimum capital structure that is the proportion of debt and equity, due importance is given to the overall or weighted average cost of capital of the firm. The objective of the firm should be to choose such a mix of debt and equity so that the overall cost of capital is minimised.

7. Evaluation of Financial Performance:

The concept of cost of capital can be used to evaluate the financial performance of top management. This can be done by comparing the actual profitability of the investment project undertaken by the firm with the overall cost of capital.

4.5.4. Measurement of Cost of Capital:

Cost of capital is measured for different sources of capital structure of a firm. It includes cost of debenture, cost of loan capital, cost of equity share capital, cost of preference share capital, cost of retained earnings etc.

A. *Cost of Debentures*:

The capital structure of a firm normally includes the debt capital. Debt may be in the form of debentures bonds, term loans from financial institutions and banks etc. The amount of interest payable for issuing debenture is considered to be the cost of debenture or debt capital (K_d). Cost of debt capital is much cheaper than the cost of capital raised from other sources, because interest paid on debt capital is tax deductible.

The cost of debenture is calculated in the following ways:

(i) When the debentures are issued and redeemable at par: $K_d = r (1 - t)$

where K_d = Cost of debenture

r = Fixed interest rate

t = Tax rate

(ii) When the debentures are issued at a premium or discount but redeemable at par

$K_d = I/NP (1 - t)$

where, K_d = Cost of debenture

I = Annual interest payment

t = Tax rate

Np = Net proceeds from the issue of debenture.

(iii) When the debentures are redeemable at a premium or discount and are redeemable after 'n' period:

K_d

$I(1-t)+1/N(R_v - NP) / ½ (R_V - NP)$

where K_d = Cost of debenture .

I = Annual interest payment

t = Tax rate

NP = Net proceeds from the issue of debentures

Ry = Redeemable value of debenture at the time of maturity

Example:

(a) A company issues Rs. 1,00,000, 15% Debentures of Rs. 100 each. The company is in 40% tax bracket. You are required to compute the cost of debt after tax, if debentures are issued at (i) Par, (ii) 10% discount, and (iii) 10% premium.

(b) If brokerage is paid at 5%, what will be the cost of debentures if issue is at par?

(a) We know, Cost of Debenture $K_d = \frac{I}{NP}(1-t)$

(i) Issued at par : $K_d = \frac{Rs.\ 15,000}{Rs.\ 1,00,000}(1 - 0.4) = 0.09$ or 9%.

(ii) Issued at discount of 10%

$K_d = \frac{Rs.\ 15,000}{Rs.\ 90,000}(1 - 0.4) = 0.10$ or 10%

(iii) Issued at 10% premium

$K_d = \frac{Rs.\ 15,000}{Rs.\ 1,10,000}(1 - 0.4) = 0.0818$ or 8.18%.

(b) If brokerage is paid @ 5% and debentures are issued at par

$K_d = \frac{Rs.\ 15,000}{Rs.\ 95,000\ (i.e.,\ Rs.\ 1,00,000 - Rs.\ 5,000)}(1 - 0.4) = 0.0947$ or 9.47%.

B. Cost of Preference Share Capital:

For preference shares, the dividend rate can be considered as its cost, since it is this amount which the company wants to pay against the preference shares. Like debentures, the issue expenses or the discount/premium on issue/redemption are also to be taken into account.

(i) The cost of preference shares (K_P) = D_P / NP

Where, D_P = Preference dividend per share

NP = Net proceeds from the issue of preference shares.

(ii) If the preference shares are redeemable after a period of 'n', the cost of preference shares (K_P) will be:

$$K_p = \frac{D_P + \frac{1}{n}(R_V - NP)}{\frac{1}{2}(R_V + NP)}$$

where NP = Net proceeds from the issue of preference shares

R_V = Net amount required for redemption of preference shares

D_P = Annual dividend amount.

There is no tax advantage for cost of preference shares, as its dividend is not allowed deduction from income for income tax purposes. The students should note that both in the case of debt and preference shares, the cost of capital is computed with reference to the obligations incurred and proceeds received. The net proceeds received must be taken into account while computing cost of capital.

Example 1:

A company issues 10% Preference shares of the face value of Rs. 100 each. Floatation costs are estimated at 5% of the expected sale price.

What will be the cost of preference share capital (K_P), if preference shares are issued (i) at par, (ii) at 10% premium and (iii) at 5% discount? Ignore dividend tax.

Solution:

Cost of preference share capital (K_P) = D_P/P

(i) When preference shares are issued at par i.e., at Rs. 100 per share, $K_p = \frac{Rs.\ 10}{Rs.\ 95} =$ 0.1052 or 10.52%, where, D_p = 10% of Rs. 100 = Rs. 10, P = Rs. 100 – 5% of Rs. 100 = Rs. 95.

(ii) When preference shares are issued at 10% premium (i.e., at Rs. 110 per share)

$K_p = \frac{Rs.\ 10}{Rs.\ 104.50}$ = 0.0956 or 9.56%,

where D_p = 10% of Rs. 100 = Rs. 10. P = Rs. 110 – 5% of Rs. 110 = Rs. 104.50.

(iii) When preference shares are issued at 5% discount (i.e., at Rs. 95 per share)

$K_p = \frac{Rs.\ 10}{Rs.\ 90.25}$ = 0.1108 or 11.08%.

where D_p = 10% of Rs. 100 = Rs. 10, P = Rs. 95 – 5% of Rs. 95 = Rs. 90.25.

Example 2:

Ruby Ltd. issues 12%. Preference Shares of Rs. 100 each at par redeemable after 10 years at 10% premium.

What will be the cost of preference share capital?

Solution :

We know, cost of preference share $(K_p) = \dfrac{D_P + \frac{1}{n}(R-P)}{\frac{1}{2} \times (R+P)}$

Here, D_p = 12% of Rs. 100 = Rs. 12, R = Rs. 110 (at 10% premium)

P = Rs. 100 (at par), n = 10 years.

$$K_p = \dfrac{Rs.12 + \frac{1}{10}(Rs.110 - Rs.100)}{\frac{1}{2} \times Rs.(110+100)} = \dfrac{Rs.\ 12 + Re.\ 1}{Rs.\ 105} = \dfrac{Rs.\ 13}{Rs.\ 105} = 0.1238 = 12.38\%$$

C. Cost of Equity or Ordinary Shares:

The funds required for a project may be raised by the issue of equity shares which are of permanent nature. These funds need not be repayable during the lifetime of the organisation. Calculation of the cost of equity shares is complicated because, unlike debt and preference shares, there is no fixed rate of interest or dividend payment.

Cost of equity share is calculated by considering the earnings of the company, market value of the shares, dividend per share and the growth rate of dividend or earnings.

(i) Dividend/Price Ratio Method:

An Investor buys equity shares of a particular company as he expects a certain return (i.e. dividend). The expected rate of dividend per share on the current market price per share is the cost of equity share capital. Thus the cost of equity share capital is computed on the basis of the present value of the expected future stream of dividends.

Thus, the cost of equity share capital (K_e) is measured by:

K_e = where D = Dividend per share

P = Current market price per share.

If dividends are expected to grow at a constant rate of 'g' then cost of equity share capital

(K_e) will be $K_e = D/P + g$.

This method is suitable for those entities where growth rate in dividend is relatively stable. But this method ignores the capital appreciation in the value of shares. A company which declares a higher amount of dividend out of given quantum of earnings will be placed at a premium as compared to a company which earns the same amount of profits but utilizes a major part of it in financing its expansion programme.

Example:

The current market price of a share is Rs. 100. The firm needs Rs. 1,00,000 for expansion and the new shares can be sold at only Rs. 95. The expected dividend at the end of the current year is Rs. 4.75 per share with a growth rate of 6%.

Calculate the cost of capital of new equity.

Solution:

We know, cost of Equity Capital (K_e) = D/P + g

(i) When current market price of share (P) = Rs. 100

K = Rs 4.75 / Rs. 100 + 6% = 0.0475 + 0.06 = 0.1075 or 10.75%.

(ii) Cost of new Equity Capital = Rs. 4.75 / Rs. 95 + 6% = 0.11 or, 11%.

Example:

A company's share is currently quoted in the market at Rs. 20. The company pays a dividend of Rs. 2 per share and the investors expect a growth rate of 5% per year.

You are required to calculate (a) Cost of equity capital of the company, and (b) the market price per share, if the anticipated growth rate of dividend is 7%.

Solution:

(a) Cost of equity share capital (K_e) = D/P +g = Rs. 2/Rs. 20 + 5% = 15%

(b) K_e = D/P + g

or, 0.15 = Rs. 2 / P + 0.07 or, P = 2/0.08 = Rs. 25.

(ii) Earnings/Price Ratio Method:

This method takes into consideration the earnings per share (EPS) and the market price of share. Thus, the cost of equity share capital will be based upon the expected rate of earnings of a company. The argument is that each investor expects a certain amount of earnings whether distributed or not, from the company in whose shares he invests.

If the earnings are not distributed as dividends, it is kept in the retained earnings and it causes future growth in the earnings of the company as well as the increase in market price of the share. Thus, the cost of equity capital (K_e) is measured by:

K_e = E/P where E = Current earnings per share

P = Market price per share.

If the future earnings per share will grow at a constant rate 'g' then cost of equity share capital (K_e) will be

K_e = E/P+ g.

This method is similar to dividend/price method. But it ignores the factor of capital appreciation or depreciation in the market value of shares. Adjustment of Floatation Cost There are costs of floating shares in market and include brokerage, underwriting commission etc. paid to brokers, underwriters etc.

These costs are to be adjusted with the current market price of the share at the time of computing cost of equity share capital since the full market value per share cannot be realised. So the market price per share will be adjusted by $(1 - f)$ where 'f' stands for the rate of floatation cost.

Thus, using the Earnings growth model the cost of equity share capital will be:

$K_e = E / P (1 - f) + g$

Example:

The share capital of a company is represented by 10,000 Equity Shares of Rs. 10 each, fully paid. The current market price of the share is Rs. 40. Earnings available to the equity shareholders amount to Rs. 60,000 at the end of a period.

Calculate the cost of equity share capital using Earning/Price ratio.

Solution :

We know, Cost of Equity Capital $= \dfrac{E}{P}$

E = Earnings per share $= \dfrac{\text{Rs. } 60,000}{10,000} = $ Rs. 6.

P = Current market price = Rs. 40.

Cost of Equity Capital $(K_e) = \dfrac{\text{Rs. } 6}{\text{Rs. } 40} = 0.15\%$ or 15%.

D. Cost of Retained Earnings:

The profits retained by a company for using in the expansion of the business also entail cost. When earnings are retained in the business, shareholders are forced to forego dividends. The dividends forgone by the equity shareholders are, in fact, an opportunity cost. Thus retained earnings involve opportunity cost.

If earnings are not retained they are passed on to the equity shareholders who, in turn, invest the same in new equity shares and earn a return on it. In such a case, the cost of retained earnings (K_r) would be adjusted by the personal tax rate and applicable brokerage, commission etc. if any.

Therefore, $K_r = K_e (1 - t)(1 - f)$, where $K_e = \dfrac{D}{P} + g$

t = Shareholders personal tax rate.

f = rate of floatation cost.

Many accountants consider the cost of retained earnings as the same as that of the cost of equity share capital. However, if the cost of equity share capital is computed on the basis of dividend growth model (i.e., $D/P + g$), a separate cost of retained earnings need not be computed since the cost of retained earnings is automatically included in the cost of equity share capital.

Therefore, $K_r = K_e = D/P + g$.

Example:

It is given that the cost of equity of a company is 20%, marginal tax rate of the shareholders is 30% and the Broker's Commission is 2% of the investment in share. The company proposes to utilise its retained earnings to the extent of Rs. 6,00,000.

Find out the cost of retained earnings.

Solution :

We know that cost of retained earnings

$$K_r = K_e(1 - t)(1 - f)$$

or $K_r = 0.20(1 - 0.30)(1 - 0.02)$

$= 0.1372$ or, 13.72%.

Here $K_e = 20\% = 0.20$

$t = 30\% = 0.30$

$f = 2\% = 0.02$.

E. Overall or Weighted Average Cost of Capital:

A firm may procure long-term funds from various sources like equity share capital, preference share capital, debentures, term loans, retained earnings etc. at different costs depending on the risk perceived by the investors.

When all these costs of different forms of long-term funds are weighted by their relative proportions to get overall cost of capital it is termed as weighted average cost of capital. It is also known as composite cost of capital. While taking financial decisions, the weighted or composite cost of capital is considered.

Importance of Weighted Average Cost of Capital

(i) It is useful in taking capital budgeting/investment decisions.

(ii) It recognizes the various sources of finance from which the investment proposal derives its life-blood (i.e., finance).

(iii) It indicates an optimum combination of various sources of finance for the enhancement of the market value of the firm.

(iv) It provides a basis for comparison among projects as a standard or cut-off rate.

Computation of Weighted Average Cost of Capital:

Computation of Weighted Average cost of capital is made in the following ways:

(i) The specific cost of each source of funds (i.e., cost of equity, preference shares, debts, retained earnings etc.) is to be calculated.

(ii) Weights (i.e., proportion of each, source of fund in the capital structure) are to be computed and assigned to each type of funds. This implies multiplication of each source of capital by appropriate weights.

Generally, the-following weights are assigned:

(a) Book values of various sources of funds

(b) Market values of various sources of capital

(c) Marginal book values of various sources of capital.

Book values of weights are based on the values reflected by the balance sheet of a concern, prepared under historical basis and ignoring price level changes. Most of the financial analysts prefer to use market value as the weights to calculate the weighted average cost of capital as it reflects the current cost of capital.

But the determination of market value involves some difficulties for which the measurement of cost of capital becomes very difficult.

(iii) Add all the weighted component costs to obtain the firm's weighted average cost of capital.

Therefore, weighted average cost of capital (K_o) is to be calculated by using the following formula:

$K_o = K_1 w_1 + K_2 w_2 + \ldots\ldots\ldots$

where K_1, K_2 ……….. are component costs and W_1, W_2 ………….. are weights.

Example:

Jamuna Ltd has the following capital structure and, after tax, costs for the different sources of fund used:

Source	Amount (Rs.)	After-tax Cost
Equity share capital	6,00,000	13%
Preference share capital	3,00,000	8%
Debentures	2,40,000	5%
Retained earnings	60,000	9%

You are required to calculate the Weighted Average Cost of Capital.

Solution :

Computation of Weighted Average Cost of Capital

Source (1)	Amount Rs. (2)	Proportion (3)	After-tax Cost (4)	Weighted Cost (5) = (3) × (4)
Equity share capital	6,00,000	0.50	0.13	0.065
Preference share capital	3,00,000	0.25	0.08	0.02
Debentures	2,40,000	0.20	0.05	0.01
Retained earnings	60,000	0.05	0.09	0.0045
	12,00,000	1.00		0.0995

∴ Weighted Average Cost of Capital (K_o) = 0.0995 × 100 = 9.95%.

4.6. Leverages and their effect on profit

Leverage refers to the employment of assets or sources of fund bearing fixed payment to magnify EBIT or EPS respectively. So it may be associated with investment activities or financing activities.

Types of leverages:

1. Operating Leverage
2. Financial Leverage
3. Combined Leverage

1. Operating Leverage:

Operating leverage is concerned with the investment activities of the firm. It relates to the incurrence of fixed operating costs in the firm's income stream. The operating cost of a firm is classified into three types: Fixed cost, variable cost and semi-variable or semi-fixed cost. Fixed cost is a contractual cost and is a function of time. So it does not change with the change in sales and is paid regardless of the sales volume.

Variable costs vary directly with the sales revenue. If no sales are made variable costs will be nil. Semi-variable or semi-fixed costs vary partly with sales and remain partly fixed. These change over a range of sales and then remain fixed. In the context of operating leverage, semi-variable or semi-fixed cost is broken down into fixed and variable portions and is merged accordingly with variable or fixed cost. Investment decision goes in favor of employing assets having fixed costs because fixed operating costs can be used as a lever.

With the use of fixed costs, the firm can magnify the effect of change in sales on change in EBIT. Hence the firm's ability to use fixed operating costs to magnify the effects of changes in sales on its earnings before interest and taxes is termed as operating leverage. This leverage relates to variation in sales and profit. Operating leverage is measured by computing the Degree of Operating Leverage (DOL). DOL expresses operating leverage in quantitative terms.

The higher the proportion of fixed operating cost in the cost structure, higher is the degree of operating leverage. The percentage change in the earnings before interest and taxes relative to a given percentage change in sales and output is defined as the DOL. Therefore,

$$DOL = \frac{\% \text{ Change in EBIT}}{\% \text{ Change in Sales}} \text{ or } \frac{\Delta \text{ EBIT}}{\text{EBIT}} \times \frac{\text{Sales}}{\Delta \text{ Sales}}$$
$$= \frac{\Delta \text{ EBIT}}{\Delta \text{ Sales}} \times \frac{\text{Sales}}{\text{EBIT}}$$

Example: Calculate the degree of operating leverage from the following data:

Sales: 1, 50,000 units at Rs 4 per unit.

Variable cost per unit Rs 2.

Fixed cost Rs 1, 50,000.

Interest charges Rs 25,000.

Solution: We know

$$\text{Degree of operating leverage (DOL)} = \frac{\text{Contribution}}{\text{EBIT}}$$

Here,

Sales = 1,50,000 × Rs 4	= Rs 6,00,000
Less: Variable Cost: 1,50,000 × Rs 2	= Rs 3,00,000
Contribution	Rs 3,00,000
Less: Fixed Cost	Rs 1,50,000
EBIT	Rs 1,50,000

$$\therefore \quad \text{DOL} = \frac{\text{Rs } 3,00,000}{\text{Rs } 1,50,000} = 2$$

2. Financial Leverage:

Financial leverage is mainly related to the mix of debt and equity in the capital structure of a firm. It exists due to the existence of fixed financial charges that do not depend on the operating profits of the firm. Various sources from which funds are used in financing of a business can be categorized into funds having fixed financial charges and funds with no fixed financial charges. Debentures, bonds, long-term loans and preference shares are included in the first category and equity shares are included in the second category.

Financing decision goes in favour of employing funds having fixed financial charges because it can be used as a lever. Financial leverage results from the existence of fixed financial charges in the firm's income stream. With the use of fixed financial charges, a firm can magnify the effect of change in EBIT on change in EPS. Hence financial leverage may be defined as the firm's ability to use fixed financial charges to magnify the effects of changes in EBIT on its EPS.

The higher the proportion of fixed charge bearing fund in the capital structure of a firm, higher is the Degree of Financial Leverage (DFL) and vice-versa. Financial leverage is computed by the DFL. DEL expresses financial leverage in quantitative terms. The percentage change in the earning per share to a given percentage changes in earnings before interest and taxes is defined as Degree of Financial Leverage (DFL). Therefore

$$\text{DFL} = \frac{\% \text{ Change in EPS}}{\% \text{ Change in EBIT}} \quad \text{or} \quad \frac{\Delta \text{ EPS}}{\text{EPS}} \times \frac{\text{EBIT}}{\Delta \text{ EBIT}}$$

$$= \frac{\Delta \text{ EPS}}{\Delta \text{ EBIT}} \times \frac{\text{EBIT}}{\text{EPS}}$$

This can also be presented alternatively as follows:

$$\text{DFL} = \frac{\text{EBIT}}{\text{EBT}}$$

Example:

Calculate the degree of financial leverage from the following information: Capital structure: 10,000, Equity Shares of Rs 10 each Rs 1, 00,000.

5,000, 11 % Preference Shares of Rs 10 each Rs 50,000.

9% Debentures of Rs 100 each Rs 50,000.

The EBIT of the company is Rs 50,000 and corporate tax rate is 45%.

Solution: We know, Degree of Financial Leverage (DFL) $= \dfrac{EBIT}{EBT - \dfrac{P_d}{1-t}}$

Here,

EBIT		Rs 50,000
Less: Interest on Debentures $\left(50,000 \times \dfrac{9}{100}\right)$		4,500
EBT		45,500

$\therefore$ $\qquad$ DFL $= \dfrac{50,000}{45,000 - \dfrac{5,500}{1-0.45}}$

$= 1.41$

3. Combined Leverage:

A firm incurs total fixed charges in the form of fixed operating cost and fixed financial charges. Operating leverage is concerned with operating risk and is expressed quantitatively by DOL. Financial leverage is associated with financial risk and is expressed quantitatively by DFL. Both the leverages are concerned with fixed charges. If we combine these two we will get the total risk of a firm that is associated with total leverage or combined leverage of the firm. Combined leverage is mainly related with the risk of not being able to cover total fixed charges.

The firm's ability to cover the aggregate of fixed operating and financial charges is termed as combined leverage. The percentage change in EPS to a given percentage change in sales is defined as Degree of Combined Leverage (DCL). DCL expresses combined leverage in quantitative terms. The higher the proportion of fixed operating cost and financial charges, higher is the degree of combined leverage. Like other two leverages the value of combined leverage must be greater than 1.

$$DCL = DOL \times DFL = \dfrac{\% \text{ Change in EBIT}}{\% \text{ Change in Sales}} \times \dfrac{\% \text{ Change in EPS}}{\% \text{ Change in EBIT}}$$

or, $\qquad$ $DCL = \dfrac{\% \text{ Change in EPS}}{\% \text{ Change in Sales}}$

Alternatively $\qquad$ $DCL = DOL \times DFL$

$\qquad\qquad\qquad = \dfrac{\text{Contribution}}{\text{EBIT}} \times \dfrac{\text{EBIT}}{\text{EBT}}$

$\therefore$ $\qquad\qquad$ $DCL = \dfrac{\text{Contribution}}{\text{EBT}}$

Note: If Preference Share exists in the capital structure the above formula will be revised as:

$$DCL = \dfrac{\text{Contribution}}{EBT - \dfrac{P_d}{1-t}}$$

where the notations have their usual meanings.

Example:

X Limited has given the following information:

	Rs
Sales	10,00,000
Variable costs	6,00,000
Fixed costs	1,50,000
Interest	75,000

Calculate the degree of combined leverage from the above data.

Solution: We know   Degree of combined leverage (DCL) $= \dfrac{\text{Contribution}}{\text{EBT}}$

Here

Contribution = Sales – Variable cost = Rs 10,00,000 – 6,00,000 = Rs 4,00,000

EBT = Contribution – Fixed cost – Interest = Rs 4,00,000 – 1,50,000 – 75,000 = 1,75,000

$\therefore$ $\text{DCL} = \dfrac{\text{Rs } 4,00,000}{\text{Rs } 1,75,000} = 2.29$

Unit V: Dividend decisions – Types of dividend models – Determinants of dividend policy – Practical aspects of dividend.

5.1. Definitions and types of dividends:

Dividend refers to the business concerns net profits distributed among the shareholders. It may also be termed as the part of the profit of a business concern, which is distributed among its shareholders.

According to the Institute of Chartered Accountant of India, dividend is defined as "a distribution to shareholders out of profits or reserves available for this purpose".

Dividend may be distributed among the shareholders in the form of cash or stock. Hence Dividends are classified into:

1. Cash Dividends

Cash Dividend refers to the dividend that is distributed to the shareholders from the earnings of a firm in the form of cash. Then, it is the choice of the shareholders, either to reinvest the money or to break out. Cash Dividends are taxable.

2. Stock Dividends

Stock Dividend refers to the dividend that is distributed to the shareholders from the earnings in the form of additionally fully paid shares. In stock dividends, firm's cash is conserved. Also, these dividends are not taxable until the shares are sold.

3. Property Dividend

Property Dividend refers to the dividends that are paid to the shareholders of the firm in the form of some property. For Example, Firm shipping the products made by it to the shareholders. Property dividend is the alternative to cash and stock dividend. These dividends are taxable at the fair market value of the property.

4. Liquidating Dividend

Liquidating Dividend refers to the dividends that are paid to the shareholders by the firm at the time of partial or full bankruptcy or while ceasing business operations. Usually, the shareholder is paid from the firm's capital base as per the number of shares the owe. This type of dividend is non-taxable.

5. Scrip Dividend

Scrip Dividend refers to the dividends that are given to the shareholders by the firm in the form of promissory notes or certificates in which the firm promises to pay the shareholders a decided amount after a particular time period. The firm issues scrip dividends due to the shortage of liquidity. This type of dividend is also an alternative to cash and stock dividends.

5.2. Determinants of dividend policy:

Profitable Position of the Firm

Dividend decision depends on the profitable position of the business concern. When the firm earns more profit, they can distribute more dividends to the shareholders.

Uncertainty of Future Income

Future income is a very important factor, which affects the dividend policy. When the shareholder needs regular income, the firm should maintain regular dividend policy.

Legal Constrains

The Companies Act 1956 has put several restrictions regarding payments and declaration of dividends. Similarly, Income Tax Act, 1961 also lays down certain restrictions on payment of dividends.

Liquidity Position

Liquidity position of the firms leads to easy payments of dividend. If the firms have high liquidity, the firms can provide cash dividend otherwise, they have to pay stock dividend.

Sources of Finance

If the firm has finance sources, it will be easy to mobilize large finance. The firm shall not go for retained earnings.

Growth Rate of the Firm

High growth rate implies that the firm can distribute more dividends to its shareholders.

Tax Policy

Tax policy of the government also affects the dividend policy of the firm. When the government gives tax incentives, the company pays more dividends.

Capital Market Conditions

Due to the capital market conditions, dividend policy may be affected. If the capital market is prefect, it leads to improve the higher dividend.

5.3. Types of dividend policy:

Dividend policy depends upon the nature of the firm, type of shareholder and profitable position. On the basis of the dividend declaration by the firm, the dividend policy may be classified under the following types:

• Regular dividend policy

• Stable dividend policy

• Irregular dividend policy

• No dividend policy.

Regular Dividend Policy

Dividend payable at the usual rate is called as regular dividend policy. This type of policy is suitable to the small investors, retired persons and others.

Stable Dividend Policy

Stable dividend policy means payment of certain minimum amount of dividend regularly. This dividend policy consists of the following three important forms:

- Constant dividend per share
- Constant payout ratio
- Stable rupee dividend plus extra dividend.

Irregular Dividend Policy

When the companies are facing constraints of earnings and unsuccessful business operation, they may follow irregular dividend policy. It is one of the temporary arrangements to meet the financial problems. These types are having adequate profit. For others no dividend is distributed.

No Dividend Policy

Sometimes the company may follow no dividend policy because of its unfavorable working capital position of the amount required for future growth of the concerns.

5.4. Theories of Dividend

1. Walter's model

2. Gordon's model

3. Modigliani and Miller's hypothesis.

1. Walter's model:

Professor James E. Walter argues that the choice of dividend policies almost always affects the value of the enterprise. His model shows clearly the importance of the relationship between the firm's internal rate of return (r) and its cost of capital (k) in determining the dividend policy that will maximize the wealth of shareholders.

His proposition may be summed up as under:

(a) When r > k (Growth Firms):

When r > k, it implies that a firm has adequate profitable investment opportunities, i.e., it can earn more what the investors expect. They are called growth firms. The optimum dividend policy, in case of those firms, may be given by a D/P ratio (Dividend pay-out ratio) of 0. It means a firm should retain its entire earnings within itself and as such, the market value of the share will be maximised.

(b) When r<k (Declining Firms):

On the contrary, when r<k, it indicates that a firm does not have profitable investment opportunities to invest their earnings. They are known as declining firms. In this case, rate of return from new investment (r) is less than the required rate of return or cost of capital (k), and as such, retention is not at all profitable.

The investors will be better-off if earnings are paid to them by way of dividend and they will earn a higher rate of return by investing such amounts elsewhere. In that case, the market price of a share will be maximised by the payment of the entire earnings by way of dividends amongst the investors. There will be an optimum dividend policy when D/P ratio is 100%.

(c) When r = k (Normal Firms)

If r = k, it means there is no one optimum dividend policy and it is not a matter whether earnings are distributed or retained due to the fact that all D/P ratios, ranging from 0 to 100, the market price of shares will remain constant.

In other words, when the profitable investment opportunities are not available, the return from investment (r) is equal to the cost of capital (k), i.e., when r = k, the dividend policy does not affect the market price of a share.

Walter's model is based on the following assumptions:

1. The firm finances all investment through retained earnings; that is debt or new equity is not issued;

2. The firm's internal rate of return (r), and its cost of capital (k) are constant;

3. All earnings are either distributed as dividend or reinvested internally immediately.

4. Beginning earnings and dividends never change. The values of the earnings pershare (E), and the divided per share (D) may be changed in the model to determine results, but any given values of E and D are assumed to remain constant forever in determining a given value.

5. The firm has a very long or infinite life.

Walter's formula to determine the market price per share (P) is as follows:

P = D/K +r(E-D)/K/K

The criticisms on the model are as follows:

1. Walter's model of share valuation mixes dividend policy with investment policy of the firm. The model assumes that the investment opportunities of the firm are financed by retained earnings only and no external financing debt or equity is used for the purpose when such a situation exists either the firm's investment or its dividend policy or both will be sub-optimum. The wealth of the owners will maximise only when this optimum investment in made.

2. Walter's model is based on the assumption that r is constant. In fact decreases as more investment occurs. This reflects the assumption that the most profitable investments are made first and then the poorer investments are made.

The firm should step at a point where r = k. This is clearly an erroneous policy and fall to optimize the wealth of the owners.

3. A firm's cost of capital or discount rate, K, does not remain constant; it changes directly with the firm's risk. Thus, the present value of the firm's income moves inversely with the cost of capital. By assuming that the discount rate, K is constant, Walter's model abstracts from the effect of risk on the value of the firm.

2. Gordon's Model:

One very popular model explicitly relating the market value of the firm to dividend policy is developed by Myron Gordon.

Assumptions:

Gordon's model is based on the following assumptions.

1. The firm is an all Equity firm

2. No external financing is available

3. The internal rate of return (r) of the firm is constant.

4. The appropriate discount rate (K) of the firm remains constant.

5. The firm and its stream of earnings are perpetual

6. The corporate taxes do not exist.

7. The retention ratio (b), once decided upon, is constant. Thus, the growth rate (g) = br is constant forever.

8. K > br = g if this condition is not fulfilled, we cannot get a meaningful value for the share.

According to Gordon's dividend capitalisation model, the market value of a share (Pq) is equal to the present value of an infinite stream of dividends to be received by the share. Thus:

$$P_0 = \frac{E_1 (1-b)}{K - br}$$

The above equation explicitly shows the relationship of current earnings (E,), dividend policy, (b), internal profitability (r) and the all-equity firm's cost of capital (k), in the determination of the value of the share (P_0).

However, his proposition may be summed up as under:

(a) When r > k (Growth Firms):

When r > A, the value per share P increases since the retention ratio, b, increases, i.e., P increases with decrease in dividend pay-out ratio. In short, under this condition, the firm should distribute smaller dividends and should retain higher earnings.

(b) When r < k (Declining Firms):

When r<k, the value per share P decreases since the retention ratio b, increases, i.e., P increases with increase in dividend pay-out ratio. It can be proved that the value of b increases, the value of the share continuously falls.

If the internal rate of return is smaller than k, which is equal to the rate available in the market, profit retention clearly becomes undesirable from the shareholders' viewpoint. Each additional rupee retained reduces the amount of funds that shareholders could invest at a higher rate elsewhere and thus it further reduces the value of the company's share.

(c) When r = k (Normal Firms):

When r = k, the value of the firm is not affected by dividend policy and is equal to the book value of assets, i.e., when r = k, dividend policy is irrelevant.

It implies that under competitive conditions, k must be equal to the rate of return, r, available to investors in comparable shares in such a manner that any funds distributed as dividends may be invested in the market at the rate which is equal to the internal rate of return of the firm.

Consequently, shareholders can neither lose nor gain by any change in the company's dividend policy and the market value of the shares must remain unchanged.

3. Modigliani-Miller hypothesis:

Modigliani-Miller hypothesis provides the irrelevance concept of dividend in a comprehensive manner. According to them, the dividend policy of a firm is irrelevant since, it does not have any effect on the price of shares of a firm, i.e., it does not affect the shareholders' wealth.

They expressed that the value of the firm is determined by the earnings power of the firms' assets or its investment policy and not the dividend decisions by splitting the earnings of retentions and dividends.

M-M Hypothesis — Assumptions:

(i) Taxes do not exist:

That is, there is no difference in tax rates between dividends and capital gains.

(ii) Investors behave rationally:

It means that investors should prefer to maximize their wealth and as such, they are indifferent between dividends and the appreciation in the value of shares.

(iv) Investment policy of the Jinn does not change, i.e., fixed.

(v) Risk and Uncertainty do not exist

In other words, investors may predict future prices and dividends with certainty and one discount rate is used for all types of securities at all times — this was subsequently dropped by M-M.

Proof of M-M Hypothesis:

According to M-M, the market price of a share at the beginning of a period is equal to the present value of dividend paid at the end of the period plus the market price of the share at the end of the period.

Criticism:

(i) Tax Differential: the cost of internal financing is cheaper as compared to cost of external financing. Thus, on account of tax advantages/differential, an investor will prefer a dividend policy with retention of earnings as compared to cash dividend.

(ii) Existence of Floatation Costs: In reality, floatation cost exists for issuing fresh shares, and there is no such cost if earnings are retained. As a result of the floatation cost, the external financing becomes costlier than internal financing.

(iii) Existence of Transaction Costs:

(iv) Diversification: M-M considers that the discount rate should be the same whether a firm uses internal or external financing. But, practically, it does not so happen. If the shareholders desire to diversify their portfolios they would like to distribute earnings which they may be able to invest in such dividends in other firms. In such a case, shareholders/investors will be inclined to have a higher value of discount rate if internal financing is being used and vice-versa.

(v) Uncertainty: According to M-M hypothesis, dividend policy of a firm will be irrelevant even if uncertainty is considered. But, under conditions of uncertainty, dividends are relevant because, investors are risk-averters and as such, they prefer near dividends than future dividends since future dividends are discounted at a higher rate as dividends involve uncertainty. Thus, the value of the firm will be higher if dividend is paid earlier than when the firm follows a retention policy.

5.5. Practical aspects of dividends:

Firms consider the following factors to determine the payout ratio –

1. Funds requirement – The dividend payout ratio of firms depends on the firm's future requirements for funds. Long term financial forecasting of funds can assess this requirement. Usually firms, which have plans for substantial financial investment, need funds to exploit the available opportunities. Thus, they keep their dividend payout ratio low. On the other hand, firms, which have very few investment avenues have larger dividend payout ratio.

2. Liquidity – It is another factor which influences the dividend payout ratio as dividends involved cash payment. Firms, which desire to pay dividends, may not do so, because of insufficient liquidity. This usually happens in the case of profitable and expanding firms, which have very low liquidity because of substantial investments.

3. Availability of external sources of financing – Firms which have easy access to external sources of funds enjoy a great deal of flexibility in deciding the dividend payout ratio. For such firms, dividend payout decision is somewhat independent of its investment decision as well as its liquidity position. Such firms are usually more generous in their dividend policies. While on the other hand, firms, which do not have easy access to external sources of funds, have to rely on the internal sources of funds or investment purposes. Such firms are usually very conservative in their dividend policy decisions.

4. Shareholder preference – Preferences of shareholder are another major factor, which influence dividend payout. If shareholders prefer current income to capital gains, then the firm may follow the liberal dividend policy. While on the other hand if they prefer capital gain to dividend income, then firms follow the conservative dividend policy.

5. Difference in the cost of external equity and retained earnings – The cost of equity in all cases except for those raised by way of rights issue is higher than the cost of retained earnings. Depending on the extent of this difference in cost, firms decide the relative proportion of external equity and retained earnings to be used. This affects the dividend policy decision of the company.

6. Control – Raising money from external resources may lead to dilution of control, in case money is raised by issuing public equity. Internal financing on the other hand does not lead to any dilution of control. Hence, if management and shareholders are averse to dilution of control, then firms prefer to rely more on retained earnings. Thus, such companies may adopt the conservative dividend policy.

7. Taxes – In India dividend income for the individuals is free, however capital gains are taxable. Thus, in that case shareholders who are in high tax bracket may prefer dividend income rather than capital gains. However, if tax on dividends is viewed from point of view of corporate, they have to pay dividend tax. Thus, this may influence the companies' dividend policy.

Important Questions:

1. Define financial management? Explain its nature, objectives and functions?

2. What are the major decisions taken in financial management? Explain briefly?

3. Explain the importance of financial management? Describe various challenges to financial management?

4. Critically examine the concept of profit maximization and wealth maximization?

5. What are the various types of debentures? State the differences between shares and debentures?

6. What is capital budgeting? Explain its importance, characteristics and limitations?

7. State differences between NPV and IRR

8. Explain various techniques of capital budgeting?

9. What is capital rationing? Explain types of capital rationing?

10. Explain various methods of risk analysis in capital budgeting?

11. Define the concept of working capital? Describe its sources, types and determinants?

12. How do you define inventory? What are the components in Inventory? Explain various techniques of inventory management?

13. Briefly describe the concept of cash management? How boumol model is different from miller and orr model?

14. What do you mean by receivables management? What are the factors affecting receivables management?

15. Briefly explain about various committee reports on bank finance?

16. How do you differentiate financial structure and capital structure? Explain about relevant and irrelevant theories of capital structure?

17. What are the determinants of capital structure? Explain each in detail?

18. Explain the concept of cost of capital and its importance? State the components in cost of capital?

19. What is leverage? How can operating leverage be differentiated from financial leverage?

20. What is a dividend? Explain about various types of dividends and its determinants?

21. Explain about relevant and irrelevant theories of dividend policies? Critically examine MM hypothesis theory?